What Every Railroad Worker Should Know About Federal Railroad Safety Laws and Regulations

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In General

The railroad safety laws are contained in a number of statutes and regulations. This booklet is intended to provide every railroad worker with a general summary. It should be used as a guide only, and if a specific problem arises, the applicable law or regulation should be reviewed. For copies of specific provisions of any law or regulation, write to the international office.

Whenever you discover a safety violation which the carrier does not immediately correct, you should promptly contact the employee’s union representative, and/or the Federal Railroad Administration and, in as much detail as possible, set forth the facts. If you have a legal question concerning the safety laws or regulations, you may contact the union’s general counsel, or Lawrence M. Mann, who prepared this booklet, 1667 K Street, N.W., 11TH Floor, Washington, D.C. 20006, (202)298-9191.

The major railroad safety laws are as follows:1/

Safety Appliance Acts (49 U.S.C. §§ 20102; 20301-20306)
Hazardous Materials Transportation (49 U.S.C. §§ 5101-5127)
Signal Inspection Act (49 U.S.C. §§ 20501-20505)
Locomotive Inspection Act (49 U.S.C. § 20702)
Accident Reports Acts (49 U.S.C. §§ 20901; 21311)
Hours of Service Act (49 U.S.C. §§ 21101-21107)
Federal Employers Liability Act (45 U.S.C. §§ 51-60)

The summaries of a few of the regulations are exactly as published in the Code of Federal Regulations. In other cases, portions of a summary prepared by the Federal Railroad Administration have been copied. The applicable statute and/or regulations are cited at the end of each subject that has been summarized.

Because of the frequent changes in the railroad safety laws and regulations, it is intended that periodic updates will be prepared and provided to persons desiring copies.

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1/ The general civil penalty provisions for violations of the safety laws under Title 49 are contained in Sections 21301-21304.
ABOUT THE AUTHOR

Lawrence M. Mann is the senior partner in the law firm of Alper & Mann, P.C., with offices at 1667 K Street, N.W., 11th Floor, Washington, D.C., 20006, telephone (202) 298-9191. He is a graduate of Georgetown University Law School and the University of North Carolina. Mr. Mann is a principal draftsman of the Federal Railroad Safety Act of 1970. Since that time, he has represented the nation's railroad workers in connection with all major safety amendments considered by Congress. He has presented testimony on pending legislative amendments and assisted in the technical drafting of such legislation. Mr. Mann regularly consults with Congressional members and staff on these issues.

In addition, he has represented the railroad workers in every major safety rulemaking before the Federal Railroad Administration. Mr. Mann consults with and assists state regulatory authorities in their administration of the railroad safety laws.

He has handled some of the most significant lawsuits nationwide in connection with the interpretation of both the federal laws and regulations, as well as the rights of the states to adopt and enforce rail safety laws. In the monthly nationwide publication entitled FELA Reporter dated September, 1994 it stated as follows:

"Larry Mann, the nation's foremost authority on railroad safety legislation and regulation..."

In the February, 1997 issue of the Washingtonian Magazine, he was listed as one of the best lawyers in Washington, D.C., and has been selected in the latest editions of The Best Lawyers in America, and Who’s Who in American Law. He has achieved the highest rating by the Martindale-Hubbell Law Directory, and is presently a board member of the Academy of Rail Labor Attorneys.

He has handled railroad negligence cases for many years, and has been involved in numerous lawsuits involving hazardous materials spills.

He is a member in good standing of the Bars of the following Courts:

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FEDERAL RAILROAD SAFETY ACT OF 1970

GENERAL

This comprehensive law authorizes the Secretary of Transportation to prescribe regulations for all areas of railroad safety (supplementing existing rail safety statutes and regulations) and to conduct necessary research, development, testing, evaluation, and training. The Secretary's authority over safety is not to be construed to prevent management and labor from bargaining collectively under the Railway Labor Act, including agreements relating to qualifications of employees. The Secretary's authority with respect to establishing qualifications of employees is limited to those physical or medical disabilities which specifically relate to safety.

The provision for supplementing existing law was inserted in the legislation to make it clear that the grant of jurisdiction under the Act does not replace the existing rail safety statutes and regulations. It was the concern of the railroad unions that if the existing statutes were repealed and incorporated by regulations, the statutory standards might be relaxed by the Secretary.

The term "railroad" as used in this Act means all forms of non-highway ground transportation that run on rails or electromagnetic guideways, including (1) commuter or other short-haul rail passenger service in a metropolitan or suburban area, as well as any commuter rail service which was operated by the Consolidated Rail Corporation as of January 1, 1979, and (2) high speed ground transportation systems that connect metropolitan areas, without regard to whether they use new technologies not associated with traditional railroads. Such term does not include rapid transit operations within an urban area that are not connected to the general railroad system of transportation.

HEARINGS AND ADMINISTRATIVE PROCEDURES:

On all rulemaking by the Secretary, an opportunity shall be provided for a hearing and the right to present oral testimony. Hearings shall be conducted in accordance with

2/ Some of the Amendments to the FRSA are discussed in separate headings in this booklet. Also, separately discussed amendments are contained in the Swift Rail Development Act of 1994, which is summarized in this booklet.

3/ A major rulemaking will not become effective until 40 days after the rule is issued. This would give Congress an opportunity to prevent the regulation from going into effect. Also, all agencies are required to determine the impact of its rule on small business and consider alternatives.

4/ The same definition of "railroad" applies to all of the other federal railroad safety laws. Some of the regulations contain different definitions.
the Administrative Procedure Act. Any action taken by the Secretary is subject to judicial review.5/

WAIVERS:

This section authorizes the Secretary to grant waivers from compliance with a particular rule, regulation or standard if he finds that the said waiver would be in the public interest and consistent with railroad safety. The Secretary is required to publicize his reasons for granting each waiver.

EMERGENCY POWERS:

This section authorizes the Secretary to issue an order against a railroad requiring it to eliminate any unsafe condition or practice which creates an emergency involving a hazard of death or injury. Such emergency orders are not subject to the rulemaking provisions requiring a hearing prior to the issuance of the order. However, subsequent to the issuance of an order an opportunity for review must be provided in accordance with 5 U.S.C. §554.

NATIONAL UNIFORMITY AND STATE REGULATION:

It is the policy of Congress that rail safety regulations be nationally uniform to whatever extent practicable. However, a state is permitted to continue to regulate with respect to any rail safety matter until such time as the Secretary issues a rule covering the same subject matter. Also, a state is permitted to adopt additional or more stringent standards than the federal standards if the state rule does not create an undue burden on interstate commerce, is not incompatible with federal standards, and is necessary to eliminate or reduce local safety hazards.

STATE PARTICIPATION:

A state is permitted to carry out investigative and surveillance activities under this Act certifying to the FRA that the said state agency (1) has regulatory jurisdiction over the safety practices in the state; (2) has been furnished a copy of each federal safety rule, regulation, order and standard; and (3) is conducting the investigative and surveillance activities prescribed by the Secretary. Also, the Secretary may enter into an agreement with a state agency where it is unable or unwilling to submit a certificate for all safety laws under the jurisdiction of the Secretary. The agreement would authorize the state to provide all or any part of the inspection service necessary to obtain compliance with the federal rules.

FUNDING FOR STATE INSPECTORS:

5/ In 1990 Congress adopted the Negotiated Rulemaking Act of 1990. It allows an agency to establish a negotiated rulemaking committee to negotiate and develop a proposed rule. If created the FRA is required to use the consensus of the committee as the basis for the rule proposed by the agency for notice and comment. (P.L. 101-648, 5 U.S.C. §§ 581-590).
This authorizes the Secretary to pay up to 50% of the costs of a state program. The state is required to assure the Secretary that it will provide the remaining funds for the program and that the level of expenditures by the state for rail safety will not be reduced below the level of such expenditures for the two years preceding the date of enactment of this law.

STATE ENFORCEMENT:

The Secretary is given the primary authority to enforce all provisions under the Act. However, if the Secretary has not acted to assess a civil penalty within 60 days of a violation or seek injunctive relief within 15 days, a state agency participating in investigative and surveillance activities may apply to the U.S. district court where the violation occurred for enforcement.

GENERAL POWERS:

The Secretary is given the necessary administrative powers to carry out his duties under the Act, including, but not limited to, conducting investigations, making reports, issuing subpoenas, requiring production of documents, taking depositions, prescribing record keeping and reporting requirements, conducting research, development, testing, evaluation and training.

The National Transportation Safety Board is authorized to determine the cause or probable cause of accidents and to develop reports concerning such accidents.

EFFECT ON FELA:

This section provides that the regulations of the Secretary under the Act shall have the force and effect of law for purposes of the Federal Employers' Liability Act.

ENFORCEMENT:

The Secretary is authorized to issue orders directing compliance with all safety statutes or with any railroad safety rule, regulation, order, or standard. The district courts of the United States have jurisdiction, upon petition by the Attorney General, to enforce such orders by appropriate means. The Attorney General is authorized to require immediate compliance with any order or subpoena of the Secretary issued pursuant to the Act.

PENALTIES:

This directs the Secretary to assess civil penalties. The fines range between a minimum of $250 up to $10,000. However, where there is a grossly negligent violation or a pattern of repeated violations which have created imminent hazard of, or caused death and injury, a fine up to $20,000 may be imposed for each offense. Each day a

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6/ Penalties are similarly increased for the other railroad safety statutes, such as the Safety Appliance Acts, the Locomotive Inspection Act, the Accident Reports Act, and the Signal
violation exists constitutes a separate offense.

There is personal liability for any individual who violates any of the laws or regulations. Provided, however, the individual will be liable only if he or she commits a willful violation. 7/

It shall not be considered a willful violation if the individual acted pursuant to a direct order of a railroad official or supervisor, and he or she protested such violation to the supervisor.

INJUNCTIVE RELIEF:

This gives the U.S. district courts jurisdiction to issue an injunction or a restraining order upon request of the Secretary and a petition filed by the Attorney General. The Secretary has authority to restrain violations or enforce rules, regulations, order, or standards under all safety statutes.

EMPLOYEE UNFIT FOR SAFETY SENSITIVE WORK:

If the Secretary determines that an employee is "unfit for safety sensitive functions," the Secretary may after notice and hearing issue a notice prohibiting the employee from working in a safety sensitive function for a specific period of time or until the employee is fit to resume his or her normal duties. (The hearing will not necessarily be an oral hearing). The Secretary, under the emergency order provisions of the Act, could use those powers, as well, to prevent an employee from working.

ANNUAL REPORT:

This section directs the Secretary to submit a comprehensive annual report to Congress. The report shall include a thorough statistical compilation of accidents and casualties by cause during the preceding year, a list of federal railroad safety regulations issued during the year, a summary of the reasons for each waiver which has been granted under the Act, an evaluation of the degree of observance of applicable railroad safety regulations, a summary of outstanding problems involved in the administration of the Act, an analysis and evaluation of research and related activity during the year, a list of judicial actions completed during the year, a list of technical information disseminated to the public, compilation of certifications filed by the states during the year, a list of certifications rejected during the year with a summary of the reasons for their rejection, and a list of agreements entered into with the states along with a list of any agreement terminated with a summary of the reasons for such termination.

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Inspection Act. However, the penalties under the Hours of Service Act is $1,000 per violation. The FRA has issued penalty schedules for particular types of violations.

7/ The procedures to be followed where an employee is charged with a willful violation is discussed under a separate heading.
49 U.S.C. §§ 20101-20144; 21301-21304
ALCOHOL AND DRUG TESTING

This part deals with the alcohol and drug testing regulations. Because of the complexity, the specific sections of the federal regulations discussed are identified for easier reference. A few sections are not summarized because they relate primarily to technical matters.

Subpart A — General

49 C.F.R. § 219.1-- Purpose And Scope

Railroads have authority to adopt more stringent standards under their own authority.

§ 219.3-- Application

The rule covers all hours of service employees who work for a railroad, and includes private contractors and their employees if such persons perform work which would be covered under the Hours of Service Act. Railroad is defined as all forms of non-highway ground transportation that run on rails or electromagnetic guideways, including (1) commuter or short-haul rail passenger service, and (2) high speed ground transportation systems. Excluded are rapid transit operations. Small railroads are excluded from most provisions of the rules if they employ 15 or fewer hours of service employees and do not operate on tracks of another railroad except as necessary for interchange. (If a small railroad operates over trackage of a covered railroad for several miles, that small railroad would be covered under the rules). Industrial plant railroads are also excluded. Foreign railroad operations within the U.S. are covered by the post accident and for cause testing, but not the random testing. Also excluded are railroads that have fewer than 400,000 total manhours.

§ 219.5-- Definitions

Various words and terms referred to in the regulation are defined in this section.

§ 219.7-- Waivers

The FRA may grant a waiver of compliance if it is in the public interest and consistent with railroad safety. (Regarding the issue of “stand down”, the FRA will treat any waiver request in accordance with § 40.21.)

8/ These sections cover all types of testing.

9/ FRA’s rules do not apply to employees on commuter railroads who have commercial drivers licenses. Rather, these employees are subject to the Federal Highway Administration’s rules.
§ 219.9-- Responsibility for Compliance

The responsibility of a railroad as it relates to violations is that the railroad is liable only if (a) it willfully requires or permits the employee to go or remain on duty while the employee was in violation of the regulations, or (b) the railroad fails to exercise due diligence (a high degree of care) to assure compliance. Any person (including but not limited to a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirements shall be subject to a penalty. Penalties may be assessed against individuals only for willful violations. The civil penalty ranges from $500 to not more than $10,000, except if gross negligence or a pattern of repeated violations has created an imminent hazard of death or injury, the penalty may not exceed $20,000 per violation.

This deals with the individual responsibility of a railroad when it operates common facilities or on the property of another railroad. The host railroad is primarily responsible for compliance with testing for post-accident or reasonable cause. The employing railroad would retain the primary responsibility concerning the other aspects of the rule, such as random testing and use prohibitions. Whenever a host railroad is involved in testing, it shall make necessary witnesses and records available to employees who are subject to an investigation. However, it is not necessary that witnesses travel where a telephone interview or other means would permit development of the facts.

Any independent contractor or other entity that performs covered service for a railroad is covered to the same extent as the railroad. The agreement between the railroad and the independent contractor must be clearly spelled out as to which has the responsibility for complying. In the absence of the clear agreement, all of the parties will be jointly and severally liable.

§ 219.11-- General Conditions for Chemical Tests

Any employee covered by the rules shall be deemed to have consented to the testing.

It is made clear that necessary medical treatment shall be given priority over testing where the employee has sustained a personal injury. The failure of an employee to remain available following an accident or a casualty as required by company rules shall be considered a refusal to participate in testing. This would subject the employee to a mandatory disqualification for a period of 9 months.

(The use of catherization to obtain a urine sample is set out at §40.61(b)(3)).

(Tampering with a sample to prevent a valid test constitutes a refusal to participate in testing and is set out in §40.191).

(Procedures to be followed where there is adulteration or substituted test is set out at §40.23).

The employee must give a written consent to the testing. Any clause in the consent form that would waive rights the employee would otherwise have is void.
Employees would not be required to waive any recourse that they may have as a result of an improper collection.

The rule does not restrict the railroad from conducting other testing that the railroad may otherwise be free to do, but samples taken under the federal regulations may not be used for testing other than what is authorized or mandated under the regulations. Each supervisor responsible for covered employees shall be trained in the signs and symptoms of alcohol and drug use. The duration of such training shall not be less than 3 hours.

§ 219.13--Preemptive Effect

States are preempted from issuing any drug testing regulations, except for a local safety hazard. This does not preempt state criminal laws.

§ 219.23--Railroad Policies

Employees shall be given clear written notice whether or not the tests are conducted under the FRA rule, and the basis upon which the tests are required (e.g., reasonable suspicion, violation of a specified operating/safety rule, random selection, follow-up, etc.) This does not require written notices for individual non-FRA testing events (such as return from furlough testing or periodic testing). The custody and control form may be used as the form of notice that is required. As also stated in §40.47 a railroad cannot use the DOT custody and control form for non-DOT testing.

Each railroad is required to provide the employee with the railroad's policies and procedures required to meet the testing requirements.

Each covered employee shall be advised by the railroad of the resources available to the employee in evaluating and resolving problems associated with misuse of alcohol and controlled substances.

The materials provided to each employee shall be detailed and include matters such as: circumstances under which an employee will be tested, the procedures to be used in a test, consequences of positive tests results, etc. The materials supplied may also include information on additional railroad policies that are based on the railroads authority independent from the FRA rules.

Subpart B —Prohibitions

49 C.F.R. § 219.101—Alcohol and Drug Use Prohibited

No employee may use or possess alcohol or a controlled substance; no employee may report for duty or remain on duty while (a) under the influence or impaired by alcohol, (b) having .04 or more alcohol in the breath or blood, or (c) under the influence of or impaired by any controlled substance.

No employee may use alcohol: (1) within 4 hours of reporting for covered
service, or (2) after receiving notice to report for covered service. (Employees who are typically subject to call no more than two hours prior to reporting shall be considered to be in compliance if they abstain from using alcohol from the time they are called to the time they report, even if that period runs for less than 4 hours before reporting to perform covered service). Where the test result is between .02 and .04 the employee must not work until his/her next scheduled duty period, but not less than eight hours after the test.

If the test result indicates an alcohol concentration below .02, a railroad cannot use the Federal test to discipline an employee. However, if the test result is between .02 and .04, a railroad may impose more stringent discipline than the Federal minimum.

§ 219.102-- Prohibition on Abuse of Controlled Substances

No covered employee may use a controlled substance at any time, whether on or off duty, except as explained below.

§ 219.103-- Prescribed and Over-the-Counter Drugs

An employee may use a controlled substance only if a treating physician has determined that such use at the prescribed dosage is consistent with safe performance of the employee's duties. Employees must affirmatively advise the physician of their safety-sensitive duties and should, for self protection, request the physician to note on the medical file that the employee is authorized to use the medication and work.

Where an employee is being treated by more than one medical practitioner, and therefore at risk with respect to drug interactions, one of the prescribing physicians is required to evaluate the effect of all medications in combination.

§ 219.104-- Responsive Action

This section deals with action required by the railroad in the event an employee tests positive or refuses to undergo the test. The employee shall be removed from covered service and then would be entitled to a prompt hearing before a person other than the charging officer. The hearing may be consolidated with any disciplinary hearing, and it shall be convened within the time set forth in the collective bargaining agreement. In the absence of an agreement provision, the employee may demand that the hearing be convened within 10 calendar days after suspension.

A railroad must comply with the return-to-service and follow-up testing requirements, and the substance abuse professional conflict –of –interest provisions in §§40.305, 40.307, and 40.299.

This section does not apply to a test under a railroad's own medical policy. A pre-

10/ Regarding prescription and over the counter drug use, the FRA on December 16, 1998 issued Safety Advisory 98-3. It recommends, but does not order, that the guidelines in this section be followed for use of all drugs.
employment alcohol test is no longer required by the regulations.

§ 219.105-- Railroad's Duty to Prevent Violations

This describes the limitations on a railroad's liability. The provisions require a railroad to exercise a high degree of care to prevent violations by an employee, but does not impose liability where, despite such efforts, the employee uses alcohol or drugs and the railroad is not aware of the conduct.

§ 219. 107-- Consequences of Unlawful Refusal

An employee who refuses to provide a breath or a body fluid sample shall be deemed disqualified for a period of nine months. This does not limit any discretion on a railroad to impose additional sanctions.

Subpart C — Post Accident Toxicological Testing

(The Part 40 procedures do not apply to the FRA post-accident testing requirements.)

49 C.F.R. § 219.201-- Events for Which Testing is Required

(a) Breath, Urine and blood testing is mandatory after:

(1) Each major train accident which results in (i) fatality; (ii) hazardous materials release involving freight car lading causing an injury from the product or an evacuation; (iii) damages to property exceeding $1,500,000.  (It should be emphasized that this section requires testing only after a "train accident." That is, there must be an event producing damage that reaches the reporting threshold of $6,700).

(2) A collision which causes an injury or damage to property which exceeds $150,000; raking collisions resulting from derailments are exempted.

(3) An employee fatality in a train incident.

(4) An accident involving a passenger train that results in one or more reportable injuries.
"Property damages" is damage to railroad property computed in the same manner used for interline claims. However, passenger equipment is valued on a replacement basis without regard to depreciation.

(b) Exceptions:

(1) There will be no mandatory testing after accidents occurring at rail/highway grade crossings. (However, the railroad could require alcohol or urine drug testing if it has reasonable cause to suspect impairment, or an employee contributes to the cause of the accident.)
(2) No testing is required where there is a collision, passenger train accident, or employee fatality and the employee's involvement can be positively excluded at the scene of the accident.

(3) This would exempt any accident/incident which is wholly attributable to vandalism, trespassers, or to natural causes such as floods, tornadoes, or other natural disasters. However, if there is significant possibility that the response by a crew member affected the severity of the accident, the exemption would not apply.

For post-accident testing, the collection site must be predesignated by the railroad and must be a medical facility. This does not prohibit the use of a nondesignated facility as may be required to effect prompt sample collection.

§ 219.203-- Responsibilities of Railroads and Employees

Once a qualifying testing event occurs, the railroad may conduct the alcohol test if the EBT is available and it does not interfere with or delay collections for mandatory blood and urine testing.

After each covered accident and incident, the railroad shall take all practicable steps to assure that all covered employees directly involved in the accident or incident provide two blood samples consisting of a primary sample and a split sample, and two urine samples consisting of a primary sample and a split sample.

If an injured employee is unconscious or unable to provide a consent and the testing medical facility declines to obtain blood samples, the railroad shall immediately notify FRA’s Alcohol and Drug Program Manager, and the duty officer at the National Response Center.

§ 219.205-- Sample Collection and Handling

This deals with post-accident sample collection. It is intended to assure that the toxicology kits be shipped as soon as possible. The means of transportation should be adequate to ensure delivery within 24 hours of shipment, and, wherever possible, transfer of the sealed kit should be directly from the collecting medical facility to the courier. However, if a courier pick-up is not available, the railroad shall transport the sealed shipping kit to the most expeditious point of shipment via air.

The FRA has awarded the contract for testing the post accident samples to NWT, Inc., Salt Lake City, Utah.

§ 219.206-- FRA Access to Breath Test Results

Documentation of breath test results shall be made available to FRA.

§ 219.207-- Fatality

In case of an employee fatality, body fluid and/or tissue samples shall be obtained. The FRA and the National Response Center shall be notified immediately of
the death.

§ 219.209-- Reports of Tests and Refusals

If a railroad is unable to obtain samples as required by the rules, the railroad shall make a narrative report of the reason for such failure, and actions taken by the railroad in response to the failure. If a test is not administered within four hours following the event, the railroad shall prepare a record stating the reasons why. The FRA and the National Response Center shall be immediately notified.

§ 219.211-- Analysis and Follow-Up

The test results are reported to both the employee and the railroad's medical review officer. The railroad has the duty of confidentiality with respect to the results under post-accident testing and with random testing. The only exception is where the FRA or the NTSB has publicly disclosed the results in the conduct of an accident investigation.

The test results for employees shall be reviewed by the railroad's MRO in the same manner as required for other testing under the regulations. The main purpose of the review is to reconcile test results with alleged medical use of the drugs by an employee. If the MRO verifies that the employee used the drug under medical authorization, that will be reported to the FRA. The MRO must conduct a review and make a report for each post-accident positive result. The FRA shall not be bound by the MRO's determination.

All medical information to the extent permitted by law shall be kept confidential. (The FRA believes that it is obligated by law to provide information pertinent to an accident investigation to the NTSB, but it urges the Board to maintain the medical information in confidence).

This clarifies the manner in which an employee shall contribute to an accident investigation by responding to the toxicology report. Also, the employee is allowed 45 days to respond to the results of a test prior to the preparation of any final investigation report. The response shall be mailed to the FRA.

The period for retaining the positive samples shall be 2 years, and the retention period for negative samples is 3 months.

At the employee's request a reanalysis of the specimen is authorized, which must be made in writing within 60 days of the date of the toxicology report. A reanalysis which is conducted at a laboratory other than the laboratory designated under the post-accident testing subpart shall be at the expense of the employee. (see 49 C.F.R. § 40.171 for time requirements for the other type tests).

Since some drugs may deteriorate during storage, any detected levels of the compound shall be considered as corroborating the original test result.

§ 219.213-- Unlawful Refusals; Consequences
An employee who refuses to cooperate in providing a blood or urine sample shall be withdrawn from covered service and shall be deemed disqualified from covered service for a period of 9 months. (A railroad can impose an additional sanction). On expiration of the 9-month disqualification period, an employee can return to work only under the same conditions as set forth in § 219.104 (SAP evaluation and necessary treatment). This could all occur within the same 9-month period. Prior to withdrawing an employee from covered service, the railroad shall provide an opportunity for a hearing before a presiding officer other than the charging official. Procedural protections are forwarded under § 219.104(d).

Subpart D — Testing For Cause

49 C.F.R. § 219.300— Mandatory Reasonable Suspicion Testing

Reasonable suspicion testing will no longer be discretionary. Suspicion of alcohol or drug use based on personal observations shall require testing. The accident/incident and rule violation provisions for testing would remain optional.

A railroad shall require a breath alcohol test where the railroad has reasonable suspicion to believe that the employee has used alcohol, or the railroad shall require a urine drug test where there is reasonable suspicion of the use of controlled substances. The reasonable suspicion must be based on specific, contemporaneous, articulable observations concerning the appearance, behavior, speech or body odors of the employees.

If the EBT device is not available within 8 hours, a report is required to be filed with FRA explaining the reasons. With respect to the breath alcohol test, one trained supervisor may make the reasonable suspicion determination, but such person may not also serve as the technician for purposes of conducting the test. With respect to a urine drug test, at least two supervisors shall be required to make the reasonable suspicion determination, but only one needs to be trained.

§ 219.301— Testing for Cause

The testing for reasonable cause was expanded in 1990 to include prohibited "use" of controlled substances, not only while on duty, but at any time. The reasonable cause testing, as originally adopted, was designed to detect and deter on the job use or impairment. Since the revised procedure has been expanded to include prohibited use of drugs at any time, impairment is no longer an issue. A railroad may seek discipline based upon any positive urine test, irrespective of impairment. Also, the employee no longer has the option to obtain a blood test.

The use of alcohol, unlike drugs, is acceptable under certain limited conditions. Under § 219.101, an employee is prohibited from using alcohol either 4 hours before reporting to perform covered service, or for the period of time running from the time the employee receives a call to report to service.

(a) A railroad may, under the conditions specified in this subpart, require a covered
employee to cooperate in breath or urine testing. This authority for urine testing is limited to testing after observations or events that occur during duty hours (including any period of overtime or emergency service). For breath testing, such test may occur only during, or immediately before or after performing safety sensitive work.

(b) The following circumstances constitute cause for the administration of breath tests under this section:

(1) **For Cause Breath Testing.** In addition to reasonable suspicion as described in §219.300, testing after an accident/incident and a rule violation constitutes reasonable cause for both breath alcohol testing, as well as urine drug testing.

(2) **Accident/incident.** The employee has been involved in a reportable accident or incident, and a supervisory employee of the railroad has a reasonable belief based on specific, articulable facts that the employee's acts or omissions contributed to the occurrence or severity of the accident or incident (Some carriers have interpreted the current rule to mean that the mere happening of an accident constitutes grounds to test an employee. The changes in (3) underscore the fact that this is not an acceptable interpretation. The railroad must be able to articulate a factual basis for believing the employee deliberately or negligently contributed to the occurrence or severity of the accident/incident before electing to test that employee); or

(3) **Rule violation.** The employee has been directly involved in one of the following operating rule violations or errors:

   (i) Noncompliance with a train order, track warrant, timetable, signal indication, special instruction or other direction with respect to movement of a train that involves—

   (A) Occupancy of a block or other segment of track to which entry was not authorized;

   (B) Failure to clear a track to permit opposing or following movement to pass;

   (C) Moving across a railroad crossing at grade without authorization; or

   (D) Passing an absolute restrictive signal or passing a restrictive signal without stopping (if required);

   (ii) Failure to protect a train as required by a rule consistent with §218.37 of this title;

   (iii) Operation of a train at a speed that exceeds the maximum authorized speed by at least ten (10) miles per hour or by fifty percent (50%) of such maximum authorized speed, whichever is less;
(iv) Alinement of a switch in violation of a railroad rule or operation of a switch under a train;

(v) Failure to apply or stop short of derail as required;
(vi) Failure to secure a hand brake or failure to secure sufficient hand brakes; or

(vii) In the case of a person performing a dispatching function or block operator function, issuance of a train order or establishment of a route that fails to provide proper protection for a train.

(viii) Entering a crossover before both switches have been properly lined for movement.

(ix) Running through a switch; and

(x) The failure to flag a train which is fouling an adjacent track, where required by the railroad's rules, is likewise a basis for testing.

(c) For Cause Urine Testing. In addition to reasonable suspicion testing in § 219.300, each of the conditions set forth in paragraphs (b)(2) ("accident/incident") and (b)(3) ("rule violation") of this section as constituting reasonable cause for breath testing also constitutes reasonable cause with respect to urine testing.

§ 219.302-- Prompt Sample Collection; Time Limitation

The breath alcohol or urine drug collection may only be conducted promptly following the observation or event upon which the testing decision is based. The reason for this is that there have been instances where the railroad has allowed the employee to complete his/her normal duties before commencing the testing procedures. In addition, there is an 8-hour limitation imposed after which the test cannot be performed. In the case of an accident or injury, the 8-hour period begins to run when a "responsible railroad supervisor" receives notice of the facts providing the basis for the test. The 8-hour period is satisfied if arrangements have been made as promptly as feasible and the employee has been brought into the collection site (with the collector present) within that time. An employee may not be tested if that employee has been released from duty under the normal procedures of the railroad.

Once the employee is released from duty, he/she may not be recalled for reasonable cause testing. This is true even if the employee reported an on the job injury after work.

"Responsible Railroad Supervisor" is defined as any responsible line supervisor (e.g. a trainmaster or a road foreman of engines) or superior official in authority over the employee to be tested. If a test required by this section is not administered within two hours following the event, the railroad must prepare a record stating why.
Subpart E — Identification of Troubled Employees

49 C.F.R. § 219.401— Requirement for Policies

... (b) Each railroad shall adopt, publish and implement—

(1) A policy designed to encourage and facilitate the identification of those covered employees who abuse alcohol or drugs and to ensure that such employees are provided the opportunity to obtain counseling or treatment.

... (e) Nothing shall be construed to—

(1) Require payment of compensation for any period an employee is out of service under a voluntary referral or co-worker report policy;

(2) Require a railroad to adhere to a voluntary referral or co-worker report policy in a case where the referral or report is made for the purpose, or with the effect, of anticipating the imminent and probable detection of a rule violation by a supervisory employee; or

(3) Limit the discretion of a railroad to dismiss or otherwise discipline an employee for specific rule violations or criminal offenses, except as specifically provided by this subpart.

§ 219.403 — Voluntary referral policy

(a) Scope. This section prescribes minimum standards for voluntary referral policies. Nothing in this section restricts a railroad from adopting, publishing and implementing a voluntary referral policy that affords more favorable conditions to employees troubled by alcohol or drug abuse problems.

(b) Required provisions. A voluntary referral policy shall include the following provisions:

(1) A covered employee who is affected by an alcohol or drug use problem may maintain an employment relationship with the railroad if, before the employee is charged with conduct deemed by the railroad sufficient to warrant dismissal, the employee seeks assistance through the railroad for the employee's alcohol or drug use problem or is referred for such assistance by another employee or by a representative of the employee's collective bargaining unit. The railroad shall specify whether, and under what circumstances, its policy provides for the acceptance of referrals from other sources, including (at the option of the railroad) supervisory employees.

(2) Except as may be provided under paragraph (c) of this section, the railroad treats the referral and subsequent handling, including counseling and treatment, as
(3) The railroad will, to the extent necessary for treatment and rehabilitation, grant the employee a leave of absence from the railroad of not less than 45 days.

(4) Except as may be provided under paragraph (c)(2) of this section, the employee will be returned to service on the recommendation of the EAP counselor. Approval of return to service may not be unreasonably withheld.

(c) **Optional provisions.** A voluntary referral policy may include any of the following provisions, at the option of the railroad:

(1) Confidentiality is waived if:

   (i) The employee at any time refuses to cooperate in a recommended course of counseling or treatment; and/or

   (ii) The employee is later determined, after investigation, to have been involved in an alcohol or drug related disciplinary offense growing out of subsequent conduct.

(2) The policy may require successful completion of a return-to-service medical examination as a further condition on reinstatement in covered service.

(3) The policy may provide that it does not apply to an employee who has previously been assisted.

(4) With respect to a certified engineer or a candidate for certification, §240.119(e) governs.

§ 219.405-- Co-worker report policy

(a) **Scope.** This section prescribes minimum standards for co-worker report policies. Nothing in this section restricts a railroad from adopting, publishing and implementing a policy that affords more favorable conditions to employees troubled by alcohol or drug abuse problems.

(b) **Employment relationship.** A co-worker report policy shall provide that a covered employee may maintain an employment relationship with the railroad following an alleged first offense under these rules or the railroad's alcohol and drug rules, subject to the conditions and procedures contained in this section.

(c) **General conditions and procedures.**

   (1) The alleged violation must come to the attention of the railroad as a result of a report by a co-worker that the employee was apparently unsafe to work with or was, or appeared to be, in violation of this part or the railroad's alcohol and drug rules.

   (2) If the railroad representative determines that the employee is in violation, the railroad may immediately remove the employee from service.
(3) The employee must elect to waive investigation on the rule charge and must contact the SAP counselor within a reasonable period specified by the policy.

(4) The SAP must schedule necessary interviews with the employee and complete an evaluation within 10 calendar days of the date on which the employee contacts the counselor, unless it becomes necessary to refer the employee for further evaluation. In each case, all necessary evaluations must be completed within 20 days of the date on which the employee contacts the counselor.

(d) **When treatment is required.** If the SAP determines that the employee needs treatment, the following conditions and procedures shall apply:

1. The railroad must grant the employee a leave of absence from the railroad of not less than 45 days, if necessary for the purpose of meeting initial treatment needs.
2. The employee must agree to undertake and successfully complete a course of treatment deemed acceptable by the SAP.
3. The railroad must promptly return the employee to service, on recommendation of the SAP. Return to service may also be conditioned on successful completion of a return-to-service medical examination. Approval of return to service may not be unreasonably withheld.
4. Following return to service, the employee, as a further condition on withholding of discipline, may, as necessary, be required to participate in a reasonable program of follow-up treatment for a period not to exceed 5 years from the date the employee was originally withdrawn from service.

(e) **When treatment is not required.** If the SAP determines that the employee is not affected by an identifiable and treatable mental or physical disorder—

1. The railroad shall return the employee to service within 5 days after completion of the evaluation.
2. During or following the out-of-service period, the railroad may require the employee to participate in a program of education and training concerning the effects of alcohol and drugs on occupational or transportation safety.

§ 219.407—Alternate policies

(a) In lieu of a policy under § 219.403 (voluntary referral) or § 219.405 (co-worker report), or both, a railroad may adopt, publish and implement, with respect to a particular class or craft of covered employees, an alternate policy or policies having as their purpose the prevention of alcohol or drug use in railroad operations, if such policy or policies has the written concurrence of the recognized representatives of such employees.

(b) The concurrence of recognized employee representatives in an alternative policy may be evidenced by a collective bargaining agreement or any other document describing
the class or craft of employees to which the alternate policy applies. The agreement or other document must make express reference to this part and to the intention of the railroad and employee representatives that the alternate policy shall apply in lieu of the policy required by §§ 219.403, 219.405, or both.

Subpart F — Pre-employment Tests

49 C.F.R. § 219.501— Pre-employment Tests

This section requires pre-employment urine testing. In addition to pre-employment drug screens, this section requires testing of any present employee who seeks to transfer from noncovered service to covered service.

However, there would only be one test if the employee moves back and forth among occupations. That is, the employee would have to take this type of test only once during his/her employment with the railroad.

§219.502— Pre-employment Alcohol Testing

This section authorizes pre-employment alcohol testing, but does not require it. Part 40 procedures must be followed.

§ 219.503— Notification; Records

The railroads shall provide for medical review of the urine drug test results as required by Subpart H, and shall notify the employee of the results of both the alcohol and/or drug tests and that records shall be maintained confidentially as required under Subpart J.

Subpart G — Random Alcohol and Drug Testing Programs

Coverage: Employees Performing Work Covered by the Hours of Service Act

§ 219.601— Railroad Random Drug Testing Programs

(a) A railroad must submit its random program to FRA for approval. A new railroad had 60 days within which to submit a random testing program, and implement it 60 days after approval.

(b) Program must meet the following criteria:

(1) Each employee to be tested shall have substantially equal statistical chance of being selected. The idea of random selection is that those tested will be selected under neutral, objective criteria, i.e., no individual will be singled out for subjective reasons.

(2) Testing is to be conducted at a "25% rate." This means that the number of tests
will equal 25% of the covered population. Under random selection, it is statistically likely that some employees will be tested more than once per year, while others will not be tested at all. If the railroad conducts the random testing through a consortium, the annual rate may be calculated for each individual employer, or for the total number of covered employees in the consortium.

(3) The program shall ensure that the possibility of a test exists on any day the employee works;

(4) Notice to employee of submitting test not given until time of duty tour;

(5) The program must be consistent with the regulations; and

(6) In general, an employee can be tested only while on duty. An employee who works in covered service only a portion of the time will be subject to random testing. To the extent practicable, such employee shall be subject to the possibility of random testing on any day that they actually performed covered service. However, the railroad may in its program specify circumstances under which that would be impossible, and therefore could require testing at times other than when actually performing covered service.

Also, if the employee’s hours of service expires before completion of a random test, the railroad must discontinue the test. (This is not the rule for post accident and for cause testing, so long as the railroad uses due diligence to complete these tests. See § 219.302).

§ 219.602 --Administrator's Determination Of Random Drug Testing Rate

Currently, railroad employees will be tested at the rate of 25%. If the data for any calendar year indicate that the positive rate is equal to or greater than 1%, the Administrator will increase the rate to 50%. When the rate is at 50%, the Administrator may lower the rate to 25%, if the data for 2 consecutive calendar years show that the positive rate is less than 1%.

If a given covered employee is subject to random testing under the rules of more than 1 DOT agency for the same railroad, the employee shall be subject to the testing at the rate established by the agency regulating more than 50% of the employee's function.

Where the railroad is required to conduct random testing under more than one DOT rule, the railroad may (1) establish separate pools for random selection with each pool containing the covered employees who are subject to the testing at the same required rates; or (2) randomly select such employees for testing at the highest percentage rate established by any DOT agency to which the railroad is subject.

§ 219.603-- Participation in Drug Testing

A railroad shall require a covered employee to cooperate in the urine testing, and the employee shall provide the required sample. The employee shall be excused only in the case of a documented medical or family emergency.

§ 219.605-- Positive Test Results; Procedures
Employee shall be entitled to test results.

Hearing rights are set forth under § 219.104, and that section also contains the requirements for an employee to be returned to service.

The action by a railroad required under § 219.104 is not stayed pending the result of the test of the split sample.

§ 219.607-- Railroad Random Alcohol Testing Programs

Each railroad shall submit for FRA approval a random alcohol testing program. Currently, the annual testing rate of tests conducted will equal at least 10% of the number of covered employees, with testing to be spread reasonably through the 12 month period. If the railroad conducts random testing through a consortium, the annual rate may be calculated in one of two ways. It may calculate for each member employer or calculate for the total number of covered employees subject to random testing by the consortium.

The employees shall be subject to testing only at the time the employee reports for work and while on duty. Only employees who perform covered service for the railroad shall be subject to testing. In the case of employees who during some duty tours perform covered service and during others do not, the employee shall be tested only during the time covered service is performed.

The railroad shall inform the employee that the random testing was made on a random basis.

No later than 45 days prior to commencement of the random alcohol testing, the railroad shall publish to each of its covered employees, individually, a written notice that they will be subject to random alcohol testing.

§ 219.608-- Administrator's Determination of Random Alcohol Testing Rate

The minimum annual percentage rate of testing shall be 25% of covered employees.

The FRA may lower the testing rate to 10% if, for two consecutive years, the violation rate is less than .5%.

The FRA may increase the testing rate to 50% if, for any calendar year, the violation rate is 1% or higher.

Where a railroad is required to conduct testing under more than one DOT agency, the railroad may establish separate pools for random selection.

§ 219.609-- Participation in Alcohol Testing

A railroad shall require a covered employee to cooperate in the alcohol testing
and the employee shall provide the required sample. The employee shall be excused only in the case of a documented medical or family emergency.

§ 219.611—Test Result Indicating Prohibited Alcohol Concentration: Procedures

Procedures for the administrative handling of a positive alcohol test are set forth in § 219.104.

Subpart H—Procedures and Safeguards For Urine Drug Testing and For Breath Alcohol Testing

In general, Subpart H has incorporated by reference 49 C.F.R. Part 40, which are the overall DOT regulations concerning the procedures that apply to all modes of transportation. The changes in this subpart specifically apply to the railroad industry.

§ 219.701—Standards for Urine Drug and Alcohol Testing

All labs (including those performing reasonable cause testing) must be certified under DHHS guidelines. FRA and the railroad shall have the right to inspect labs.

All testing under Subparts B,D,F, and G shall comply with Part 40.

Each employee who is notified of selection for testing and who is not performing covered service at the time of notification must proceed to the testing site immediately. The railroad must assure that an employee who is performing covered service at the time of notification shall, as soon as possible without affecting safety, cease to perform covered service and proceed to the testing site.

§ 219.703—Drug Testing Procedures

Only a licensed medical professional or medical technologist or technician, or a person specially trained in the function, may collect the urine sample. No management or supervisory employee may collect the sample.

§ 219.705—Drugs Tested

Authorized to test for 5 drugs: marijuana, cocaine, PCP, opiates, amphetamines. In addition to the five drugs which shall be analyzed, as part of the reasonable cause testing program, a railroad may test for additional drugs only with the approval of FRA and only for substances which the DHHS has established and approved testing protocol and positive threshold. If reasonable cause testing, railroad may test for other drugs with FRA approval.

§ 219.707—Review by MRO of Urine Drug Testing Results

Test results shown positive by lab shall not be deemed positive until reviewed by
MRO as provided in Part 40.

The MRO shall complete the review of test results within not more than 10 regular working days from receipt of the lab report. In the case of a positive lab report, this review always involves an opportunity for a medical interview. After the MRO has reviewed the information, and the lab report is verified as indicating a positive, the MRO shall report the results to a designated railroad officer. The employee shall be provided a copy by delivering or mailing within 24 hours following any adverse action.

§ 219.711—Confidentiality of Test Results

The laboratory reporting the results of tests shall report such results only to the designated MRO of the railroad, and the employee. In addition, the MRO may not disclose medically approved drug use to non-medical railroad personnel or any third party; however, the railroad's medical officer may use such information in the context of an established medical qualifications program. This section shall not be construed to permit medical disqualification of an employee prior to the completion of the MRO review. Finally, no record of the test conducted may be used or disseminated without the voluntary written consent of the employee. There is an exception—FRA or NTSB may disclose, where necessary, to consider information in accident investigation to determine probable cause.

§ 219.715—Alcohol Testing Procedures

Each covered employee who is notified of selection for breath alcohol testing and who is not performing a safety-sensitive function at the time of notification shall proceed to the testing site immediately. If the employee is performing a safety-sensitive function at the time of notification, the employee shall cease to perform the safety-sensitive function as soon as possible without affecting safety and proceed to the testing site. All breath alcohol testing conducted under this part shall comply with the procedures of Part 40.

Subpart I—Annual Report

§ 219.801—Reporting Alcohol Misuse Prevention Program Results in a Management Information System.

Each railroad that has 400,000 or more total man-hours shall submit an annual report to FRA which summarizes the results of its alcohol and drug misuse prevention program annually. The reports shall be submitted no later than March 15 of each year. This section sets out the types of information which must be contained in the report, including the number of employees by employee category, the number of covered employees in each category subject to testing under the regulations of more than one DOT agency, the number of tests by type of test, the number of confirmatory tests by type of tests, the number of confirmatory tests indicating alcohol greater than .04, and indicating concentration between .02 and .04, the number of persons denied a position as a covered employee following a confirmed positive test, number of covered employees confirmed positive who was returned to duty in covered positions during the reporting period, the number of employees with tests verified positive for drug and alcohol, the number of covered employees who refused to submit to a test, the number of persons who
received training.

§219.803 -- Reporting Drug Misuse Prevention Program Results In A Management Information System

This section provides reporting requirements of FRA’s Management Information System for drug testing.

Subpart J--Recordkeeping Requirements

§ 219.901 -- Retention of alcohol testing records.

(a) General requirement. In addition to the records required to be kept by part 40 of this title, each railroad must maintain alcohol misuse prevention program records in a secure location with controlled access as set out in this section.

(b) Each railroad must maintain the following records for a minimum of five years:

   (1) A summary record of each covered employee's test results; and

   (2) A copy of the annual report summarizing the results of its alcohol misuse prevention program (if required to submit the report under § 219.801(a)).

(c) Each railroad must maintain the following records for a minimum of two years:

   (1) Records related to the collection process:

      (i) Collection logbooks, if used.

      (ii) Documents relating to the random selection process.

      (iii) Documents generated in connection with decisions to administer reasonable suspicion alcohol tests.

      (iv) Documents generated in connection with decisions on post-accident testing.

      (v) Documents verifying the existence of a medical explanation of the inability of a covered employee to provide an adequate specimen.

   (2) Records related to test results:

      (i) The railroad's copy of the alcohol test form, including the results of the test.

      (ii) Documents related to the refusal of any covered employee to submit to an alcohol test required by this part.
(iii) Documents presented by a covered employee to dispute the result of an alcohol test administered under this part.

(3) Records related to other violations of this part.

(4) Records related to employee training:

(i) Materials on alcohol abuse awareness, including a copy of the railroad's policy on alcohol abuse.

(ii) Documentation of compliance with the requirements of § 219.23.

(iii) Documentation of training provided to supervisors for the purpose of qualifying the supervisors to make a determination concerning the need for alcohol testing based on reasonable suspicion.

(iv) Certification that any training conducted under this part complies with the requirements for such training.

§ 219.903 -- Retention of drug testing records.

(a) General requirement. In addition to the records required to be kept by Part 40 of this title, each railroad must maintain drug abuse prevention program records in a secure location with controlled access as set forth in this section.

(b) (1) Each railroad must maintain the following records for a minimum of five years:

   (i) A summary record of each covered employee's test results; and

   (ii) A copy of the annual report summarizing the results of its drug misuse prevention program (if required to submit under § 219.803(a)).

(2) Each railroad must maintain the following records for a minimum of two years.

(c) Types of records. The following specific records must be maintained:

(1) Records related to the collection process:

   (i) Documents relating to the random selection process.

   (ii) Documents generated in connection with decisions to administer reasonable suspicion drug tests.

   (iii) Documents generated in connection with decisions on post-accident testing.
(iv) Documents verifying the existence of a medical explanation of the inability of a covered employee to provide a specimen.

(2) Records related to test results:

(i) The railroad's copy of the drug test custody and control form, including the results of the test.

(ii) Documents presented by a covered employee to dispute the result of a drug test administered under this part.

(3) Records related to other violations of this part.

(4) Records related to employee training:

(i) Materials on drug abuse awareness, including a copy of the railroad's policy on drug abuse.

(ii) Documentation of compliance with the requirements of § 219.23.

(iii) Documentation of training provided to supervisors for the purpose of qualifying the supervisors to make a determination concerning the need for alcohol testing based on reasonable suspicion.

(iv) Certification that any training conducted under this part complies with the requirements for such training.

§ 219.905 -- Access to facilities and records.

(a) Release of covered employee information contained in records required to be maintained under §§ 219.901 and 219.903 must be in accordance with part 40 of this title and with this section. (For purposes of this section only, urine drug testing records are considered equivalent to breath alcohol testing records.)

(b) Each railroad must permit access to all facilities utilized in complying with the requirements of this part to the Secretary of Transportation, United States Department of Transportation, or any DOT agency with regulatory authority over the railroad or any of its covered employees.

(c) Each railroad must make available copies of all results for railroad alcohol and drug testing programs conducted under this part and any other information pertaining to the railroad's alcohol and drug misuse prevention program, when requested by the Secretary of Transportation or any DOT agency with regulatory authority over the railroad or covered employee.

Appendix A—Schedule of Civil Penalties

Appendix B—Designation of Laboratory for Post-Accident Testing
SAFETY ADVISORY 98-3 REGARDING THE USE OF PRESCRIPTION AND OVER-THE-COUNTER DRUGS

Although the federal regulations do not address prescription and over the counter drug use, FRA strongly recommends that railroads and employees follow 219.103 guidelines when considering use of prescription and OTC drugs. FRA recommends that either a treating medical professional or a railroad-designated physician make a fitness-for-work determination concerning all prescription and OTC drug use prior to permitting an employee to return to work in safety sensitive service, and including situations where and employee is concerned about the possible effects on his job performance such use.

Section 219.103(b) authorizes railroads to establish reporting and approval procedures for all prescription and OTC drugs which may have a detrimental effect on safety.

Additionally, FRA recommends that railroads educate their employees on these reporting and approval procedures.

PART 40—PROCEDURES FOR TRANSPORTATION WORKPLACE DRUG AND ALCOHOL TESTING PROGRAMS

Subpart A—Administrative Provisions

Sec.

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Subpart B—Employer Responsibilities

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40.15 May an employer use a service agent to meet DOT drug and alcohol testing requirements?

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40.19 [Reserved]

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40.267 What problems always cause an alcohol test to be cancelled?

40.269 What problems cause an alcohol test to be cancelled unless they are corrected?

40.271 How are alcohol testing problems corrected?

40.273 What is the effect of a cancelled alcohol test?

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40.351 What confidentiality requirements apply to service agents?

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**Subpart A—Administrative Provisions**

§ 40.1 -- Who does this regulation cover?
(a) This part tells all parties who conduct drug and alcohol tests required by Department of Transportation (DOT) agency regulations how to conduct these tests and what procedures to use.
(b) This part concerns the activities of transportation employers, safety-sensitive transportation employees (including self-employed individuals, contractors and volunteers as covered by DOT agency regulations), and service agents.
(c) Nothing in this part is intended to supersede or conflict with the implementation of the Federal Railroad Administration's post-accident testing program (see 49 CFR 219.200).

§ 40.3 -- What do the terms used in this regulation mean?
In this part, the terms listed in this section have the following meanings:
Adulterated specimen. A specimen that contains a substance that is not expected to be present in human urine, or contains a substance expected to be present but is at a concentration so high that it is not consistent with human urine.

Affiliate. Persons are affiliates of one another if, directly or indirectly, one controls or has the power to control the other, or a third party controls or has the power to control both. Indicators of control include, but are not limited to: interlocking management or ownership; shared interest among family members; shared facilities or equipment; or common use of employees. Following the issuance of a public interest exclusion, an organization having the same or similar management, ownership, or principal employees as the service agent concerning whom a public interest exclusion is in effect is regarded as an affiliate. This definition is used in connection with the public interest exclusion procedures of Subpart R of this part.

Air blank. In evidential breath testing devices (EBTs) using gas chromatography technology, a reading of the device's internal standard. In all other EBTs, a reading of ambient air containing no alcohol.

Alcohol. The intoxicating agent in beverage alcohol, ethyl alcohol or other low molecular weight alcohols, including methyl or isopropyl alcohol.

Alcohol concentration. The alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by a breath test under this part.

Alcohol confirmation test. A subsequent test using an EBT, following a screening test with a result of 0.02 or greater, that provides quantitative data about the alcohol concentration.

Alcohol screening device (ASD). A breath or saliva device, other than an EBT, that is approved by the National Highway Traffic Safety Administration (NHTSA) and placed on a conforming products list (CPL) for such devices.

Alcohol screening test. An analytic procedure to determine whether an employee may have a prohibited concentration of alcohol in a breath or saliva specimen.

Alcohol testing site. A place selected by the employer where employees present themselves for the purpose of providing breath or saliva for an alcohol test.

Alcohol use. The drinking or swallowing of any beverage, liquid mixture or preparation (including any medication), containing alcohol.

Blind specimen or blind performance test specimen. A specimen submitted to a laboratory for quality control testing purposes, with a fictitious identifier, so that the laboratory cannot distinguish it from an employee specimen.

Breath Alcohol Technician (BAT). A person who instructs and assists employees in the alcohol testing process and operates an evidential breath testing device.

Cancelled test. A drug or alcohol test that has a problem identified that cannot be or has not been corrected, or which this part otherwise requires to be cancelled. A cancelled test is neither a positive nor a negative test.

Chain of custody. The procedure used to document the handling of the urine specimen from the time the employee gives the specimen to the collector until the specimen is destroyed. This procedure uses the Federal Drug Testing Custody and Control Form (CCF).

Collection container. A container into which the employee urinates to provide the specimen for a drug test.

Collection site. A place selected by the employer where employees present themselves for the purpose of providing a urine specimen for a drug test.
Collector. A person who instructs and assists employees at a collection site, who receives and makes an initial inspection of the specimen provided by those employees, and who initiates and completes the CCF.

Confirmation (or confirmatory) drug test. A second analytical procedure performed on a urine specimen to identify and quantify the presence of a specific drug or drug metabolite.

Confirmation (or confirmatory) validity test. A second test performed on a urine specimen to further support a validity test result.

Confirmed drug test. A confirmation test result received by an MRO from a laboratory.

Consortium/Third-party administrator (C/TPA). A service agent that provides or coordinates the provision of a variety of drug and alcohol testing services to employers. C/TPAs typically perform administrative tasks concerning the operation of the employers' drug and alcohol testing programs. This term includes, but is not limited to, groups of employers who join together to administer, as a single entity, the DOT drug and alcohol testing programs of its members. C/TPAs are not "employers" for purposes of this part.

Continuing education. Training for medical review officers (MROs) and substance abuse professionals (SAPs) who have completed qualification training and are performing MRO or SAP functions, designed to keep MROs and SAPs current on changes and developments in the DOT drug and alcohol testing program.

Designated employer representative (DER). An employee authorized by the employer to take immediate action(s) to remove employees from safety-sensitive duties and to make required decisions in the testing and evaluation processes. The DER also receives test results and other communications for the employer, consistent with the requirements of this part. Service agents cannot act as DERs.

Dilute specimen. A specimen with creatinine and specific gravity values that are lower than expected for human urine.

DOT, The Department, DOT agency. These terms encompass all DOT agencies, including, but not limited to, the United States Coast Guard (USCG), the Federal Aviation Administration (FAA), the Federal Railroad Administration (FRA), the Federal Motor Carrier Safety Administration (FMCSA), the Federal Transit Administration (FTA), the National Highway Traffic Safety Administration (NHTSA), the Research and Special Programs Administration (RSPA), and the Office of the Secretary (OST). These terms include any designee of a DOT agency.

Drugs. The drugs for which tests are required under this part and DOT agency regulations are marijuana, cocaine, amphetamines, phencyclidine (PCP), and opiates.

Employee. Any person who is designated in a DOT agency regulation as subject to drug testing and/or alcohol testing. The term includes individuals currently performing safety-sensitive functions designated in DOT agency regulations and applicants for employment subject to pre-employment testing. For purposes of drug testing under this part, the term employee has the same meaning as the term "donor" as found on CCF and related guidance materials produced by the Department of Health and Human Services.

Employer. A person or entity employing one or more employees (including an individual who is self-employed) subject to DOT agency regulations requiring compliance with this part. The term includes an employer's officers, representatives, and management personnel. Service agents are not employers for the purposes of this part.

Error Correction Training. Training provided to BATs, collectors, and screening test technicians (STTs) following an error that resulted in the cancellation of a drug or
alcohol test. Error correction training must be provided in person or by a means that provides real-time observation and interaction between the instructor and trainee. 

**Evidential Breath Testing Device (EBT).** A device approved by NHTSA for the evidential testing of breath at the .02 and .04 alcohol concentrations, placed on NHTSA’s Conforming Products List (CPL) for "Evidential Breath Measurement Devices" and identified on the CPL as conforming with the model specifications available from NHTSA’s Traffic Safety Program.

**HHS.** The Department of Health and Human Services or any designee of the Secretary, Department of Health and Human Services.

**Initial drug test.** The test used to differentiate a negative specimen from one that requires further testing for drugs or drug metabolites.

**Initial validity test.** The first test used to determine if a specimen is adulterated, diluted, or substituted.

**Laboratory.** Any U.S. laboratory certified by HHS under the National Laboratory Certification Program as meeting the minimum standards of Subpart C of the HHS Mandatory Guidelines for Federal Workplace Drug Testing Programs; or, in the case of foreign laboratories, a laboratory approved for participation by DOT under this part. (The HHS Mandatory Guidelines for Federal Workplace Drug Testing Programs are available on the internet at [http://www.health.org/workpl.htm](http://www.health.org/workpl.htm) or from the Division of Workplace Programs, 5600 Fishers Lane, Rockwall II Building, Suite 815, Rockville, MD 20857.)

**Medical Review Officer (MRO).** A person who is a licensed physician and who is responsible for receiving and reviewing laboratory results generated by an employer's drug testing program and evaluating medical explanations for certain drug test results.

**Office of Drug and Alcohol Policy and Compliance (ODAPC).** The office in the Office of the Secretary, DOT, that is responsible for coordinating drug and alcohol testing program matters within the Department and providing information concerning the implementation of this part.

**Primary specimen.** In drug testing, the urine specimen bottle that is opened and tested by a first laboratory to determine whether the employee has a drug or drug metabolite in his or her system; and for the purpose of validity testing. The primary specimen is distinguished from the split specimen, defined in this section.

**Qualification Training.** The training required in order for a collector, BAT, MRO, SAP, or STT to be qualified to perform their functions in the DOT drug and alcohol testing program. Qualification training may be provided by any appropriate means (e.g., classroom instruction, internet application, CD-ROM, video).

**Refresher Training.** The training required periodically for qualified collectors, BATs, and STTs to review basic requirements and provide instruction concerning changes in technology (e.g., new testing methods that may be authorized) and amendments, interpretations, guidance, and issues concerning this part and DOT agency drug and alcohol testing regulations. Refresher training can be provided by any appropriate means (e.g., classroom instruction, internet application, CD-ROM, video).

**Screening Test Technician (STT).** A person who instructs and assists employees in the alcohol testing process and operates an ASD.

**Secretary.** The Secretary of Transportation or the Secretary's designee.

**Service agent.** Any person or entity, other than an employee of the employer, who provides services specified under this part to employers and/or employees in connection with DOT drug and alcohol testing requirements. This includes, but is not limited to, collectors, BATs and STTs, laboratories, MROs, substance abuse professionals, and
C/TPAs. To act as service agents, persons and organizations must meet the qualifications set forth in applicable sections of this part. Service agents are not employers for purposes of this part.

**Shipping container.** A container that is used for transporting and protecting urine specimen bottles and associated documents from the collection site to the laboratory.

**Specimen bottle.** The bottle that, after being sealed and labeled according to the procedures in this part, is used to hold the urine specimen during transportation to the laboratory.

**Split specimen.** In drug testing, a part of the urine specimen that is sent to a first laboratory and retained unopened, and which is transported to a second laboratory in the event that the employee requests that it be tested following a verified positive test of the primary specimen or a verified adulterated or substituted test result.

**Stand-down.** The practice of temporarily removing an employee from the performance of safety-sensitive functions based only on a report from a laboratory to the MRO of a confirmed positive test for a drug or drug metabolite, an adulterated test, or a substituted test, before the MRO has completed verification of the test result.

**Substance Abuse Professional (SAP).** A person who evaluates employees who have violated a DOT drug and alcohol regulation and makes recommendations concerning education, treatment, follow-up testing, and aftercare.

**Substituted specimen.** A specimen with creatinine and specific gravity values that are so diminished that they are not consistent with human urine.

**Verified test.** A drug test result or validity testing result from an HHS-certified laboratory that has undergone review and final determination by the MRO.

### § 40.5 -- Who issues authoritative interpretations of this regulation?

ODAPC and the DOT Office of General Counsel (OGC) provide written interpretations of the provisions of this part. These written DOT interpretations are the only official and authoritative interpretations concerning the provisions of this part. DOT agencies may incorporate ODAPC/OGC interpretations in written guidance they issue concerning drug and alcohol testing matters. Only Part 40 interpretations issued after August 1, 2001, are considered valid.

### § 40.7 -- How can you get an exemption from a requirement in this regulation?

(a) If you want an exemption from any provision of this part, you must request it in writing from the Office of the Secretary of Transportation, under the provisions and standards of 49 CFR Part 5. You must send requests for an exemption to the following address: Department of Transportation, Deputy Assistant General Counsel for Regulation and Enforcement, 400 7th Street, SW., Room 10424, Washington, DC 20590.

(b) Under the standards of 49 CFR part 5, we will grant the request only if the request documents special or exceptional circumstances, not likely to be generally applicable and not contemplated in connection with the rulemaking that established this part, that make your compliance with a specific provision of this part impracticable.

(c) If we grant you an exemption, you must agree to take steps we specify to comply with the intent of the provision from which an exemption is granted.

(d) We will issue written responses to all exemption requests.
Subpart B--Employer Responsibilities

§ 40.11 -- What are the general responsibilities of employers under this regulation?
(a) As an employer, you are responsible for meeting all applicable requirements and procedures of this part.
(b) You are responsible for all actions of your officials, representatives, and agents (including service agents) in carrying out the requirements of the DOT agency regulations.
(c) All agreements and arrangements, written or unwritten, between and among employers and service agents concerning the implementation of DOT drug and alcohol testing requirements are deemed, as a matter of law, to require compliance with all applicable provisions of this part and DOT agency drug and alcohol testing regulations. Compliance with these provisions is a material term of all such agreements and arrangements.

§ 40.13 -- How do DOT drug and alcohol tests relate to non-DOT tests?
(a) DOT tests must be completely separate from non-DOT tests in all respects.
(b) DOT tests must take priority and must be conducted and completed before a non-DOT test is begun. For example, you must discard any excess urine left over from a DOT test and collect a separate void for the subsequent non-DOT test.
(c) Except as provided in paragraph (d) of this section, you must not perform any tests on DOT urine or breath specimens other than those specifically authorized by this part or DOT agency regulations. For example, you may not test a DOT urine specimen for additional drugs, and a laboratory is prohibited from making a DOT urine specimen available for a DNA test or other types of specimen identity testing.
(d) The single exception to paragraph (c) of this section is when a DOT drug test collection is conducted as part of a physical examination required by DOT agency regulations. It is permissible to conduct required medical tests related to this physical examination (e.g., for glucose) on any urine remaining in the collection container after the drug test urine specimens have been sealed into the specimen bottles.
(e) No one is permitted to change or disregard the results of DOT tests based on the results of non-DOT tests. For example, as an employer you must not disregard a verified positive DOT drug test result because the employee presents a negative test result from a blood or urine specimen collected by the employee's physician or a DNA test result purporting to question the identity of the DOT specimen.
(f) As an employer, you must not use the CCF or the ATF in your non-DOT drug and alcohol testing programs. This prohibition includes the use of the DOT forms with references to DOT programs and agencies crossed out. You also must always use the CCF and ATF for all your DOT-mandated drug and alcohol tests.

§ 40.15 -- May an employer use a service agent to meet DOT drug and alcohol testing requirements?
(a) As an employer, you may use a service agent to perform the tasks needed to comply with this part and DOT agency drug and alcohol testing regulations, consistent with the requirements of Subpart Q and other applicable provisions of this part.
(b) As an employer, you are responsible for ensuring that the service agents you use meet the qualifications set forth in this part (e.g., § 40.121 for MROs). You may require
service agents to show you documentation that they meet the requirements of this part (e.g., documentation of MRO qualifications required by § 40.121(e)).

c) You remain responsible for compliance with all applicable requirements of this part and other DOT drug and alcohol testing regulations, even when you use a service agent. If you violate this part or other DOT drug and alcohol testing regulations because a service agent has not provided services as our rules require, a DOT agency can subject you to sanctions. Your good faith use of a service agent is not a defense in an enforcement action initiated by a DOT agency in which your alleged noncompliance with this part or a DOT agency drug and alcohol regulation may have resulted from the service agent's conduct.

d) As an employer, you must not permit a service agent to act as your DER.

§ 40.17 -- Is an employer responsible for obtaining information from its service agents?

Yes, as an employer, you are responsible for obtaining information required by this part from your service agents. This is true whether or not you choose to use a C/TPA as an intermediary in transmitting information to you. For example, suppose an applicant for a safety-sensitive job takes a pre-employment drug test, but there is a significant delay in your receipt of the test result from an MRO or C/TPA. You must not assume that "no news is good news" and permit the applicant to perform safety-sensitive duties before receiving the result. This is a violation of the Department's regulations.

§ 40.19 -- [Reserved]

§ 40.21 -- May an employer stand down an employee before the MRO has completed the verification process?

(a) As an employer, you are prohibited from standing employees down, except consistent with a waiver a DOT agency grants under this section.

(b) You may make a request to the concerned DOT agency for a waiver from the prohibition of paragraph (a) of this section. Such a waiver, if granted, permits you to stand an employee down following the MRO's receipt of a laboratory report of a confirmed positive test for a drug or drug metabolite, an adulterated test, or a substituted test pertaining to the employee.

(1) For this purpose, the concerned DOT agency is the one whose drug and alcohol testing rules apply to the majority of the covered employees in your organization. The concerned DOT agency uses its applicable procedures for considering requests for waivers.

(2) Before taking action on a waiver request, the concerned DOT agency coordinates with other DOT agencies that regulate the employer's other covered employees.

(3) The concerned DOT agency provides a written response to each employer that petitions for a waiver, setting forth the reasons for the agency's decision on the waiver request.

(c) Your request for a waiver must include, as a minimum, the following elements:

(1) Information about your organization:

(i) Your determination that standing employees down is necessary for safety in your organization and a statement of your basis for it, including any data
on safety problems or incidents that could have been prevented if a stand-down procedure had been in place;

(ii) Data showing the number of confirmed laboratory positive, adulterated, and substituted test results for your employees over the two calendar years preceding your waiver request, and the number and percentage of those test results that were verified positive, adulterated, or substituted by the MRO;

(iii) Information about the work situation of the employees subject to stand-down, including a description of the size and organization of the unit(s) in which the employees work, the process through which employees will be informed of the stand-down, whether there is an in-house MRO, and whether your organization has a medical disqualification or stand-down policy for employees in situations other than drug and alcohol testing; and

(iv) A statement of which DOT agencies regulate your employees.

(2) Your proposed written company policy concerning stand-down, which must include the following elements:

(i) Your assurance that you will distribute copies of your written policy to all employees that it covers;

(ii) Your means of ensuring that no information about the confirmed positive, adulterated, or substituted test result or the reason for the employee's temporary removal from performance of safety-sensitive functions becomes available, directly or indirectly, to anyone in your organization (or subsequently to another employer) other than the employee, the MRO and the DER;

(iii) Your means of ensuring that all covered employees in a particular job category in your organization are treated the same way with respect to stand-down;

(iv) Your means of ensuring that a covered employee will be subject to stand-down only with respect to the actual performance of safety-sensitive duties;

(v) Your means of ensuring that you will not take any action adversely affecting the employee's pay and benefits pending the completion of the MRO's verification process. This includes continuing to pay the employee during the period of the stand-down in the same way you would have paid him or her had he or she not been stood down;

(vi) Your means of ensuring that the verification process will commence no later than the time an employee is temporarily removed from the performance of safety-sensitive functions and that the period of stand-down for any employee will not exceed five days, unless you are informed in writing by the MRO that a longer period is needed to complete the verification process; and

(vii) Your means of ensuring that, in the event that the MRO verifies the test negative or cancels it-

(A) You return the employee immediately to the performance of safety-sensitive duties;

(B) The employee suffers no adverse personnel or financial consequences as a result; and

(C) You maintain no individually identifiable record that the employee had a confirmed laboratory positive, adulterated, or substituted test result (i.e., you maintain a record of the test only as a negative or cancelled test).
(d) The Administrator of the concerned DOT agency, or his or her designee, may grant a waiver request only if he or she determines that, in the context of your organization, there is a high probability that the procedures you propose will effectively enhance safety and protect the interests of employees in fairness and confidentiality.

(1) The Administrator, or his or her designee, may impose any conditions he or she deems appropriate on the grant of a waiver.

(2) The Administrator, or his or her designee, may immediately suspend or revoke the waiver if he or she determines that you have failed to protect effectively the interests of employees in fairness and confidentiality, that you have failed to comply with the requirements of this section, or that you have failed to comply with any other conditions the DOT agency has attached to the waiver.

(e) You must not stand employees down in the absence of a waiver, or inconsistent with the terms of your waiver. If you do, you are in of this part and DOT agency drug testing regulations, and you are subject to enforcement action by the DOT agency just as you are for other violations of this part and DOT agency rules.

§ 40.23 -- What actions do employers take after receiving verified test results?

(a) As an employer who receives a verified positive drug test result, you must immediately remove the employee involved from performing safety-sensitive functions. You must take this action upon receiving the initial report of the verified positive test result. Do not wait to receive the written report or the result of a split specimen test.

(b) As an employer who receives a verified adulterated or substituted drug test result, you must consider this a refusal to test and immediately remove the employee involved from performing safety-sensitive functions. You must take this action on receiving the initial report of the verified adulterated or substituted test result. Do not wait to receive the written report or the result of a split specimen test.

(c) As an employer who receives an alcohol test result of 0.04 or higher, you must immediately remove the employee involved from performing safety-sensitive functions. If you receive an alcohol test result of 0.02-0.39, you must temporarily remove the employee involved from performing safety-sensitive functions, as provided in applicable DOT agency regulations. Do not wait to receive the written report of the result of the test.

(d) As an employer, when an employee has a verified positive, adulterated, or substituted test result, or has otherwise violated a DOT agency drug and alcohol regulation, you must not return the employee to the performance of safety-sensitive functions until or unless the employee successfully completes the return-to-duty process of Subpart O of this part.

(e) As an employer who receives a drug test result indicating that the employee's specimen was dilute, take action as provided in § 40.197.

(f) As an employer who receives a drug test result indicating that the employee's specimen was invalid and that a second collection must take place under direct observation:

(1) You must immediately direct the employee to provide a new specimen under direct observation.

(2) You must not attach consequences to the finding that the test was invalid other than collecting a new specimen under direct observation.

(3) You must not give any advance notice of this test requirement to the employee.
(4) You must instruct the collector to note on the CCF the same reason (e.g., random test, post-accident test) as for the original collection.

(g) As an employer who receives a cancelled test result when a negative result is required (e.g., pre-employment, return-to-duty, or follow-up test), you must direct the employee to provide another specimen immediately.

(h) As an employer, you may also be required to take additional actions required by DOT agency regulations (e.g., FAA rules require some positive drug tests to be reported to the Federal Air Surgeon).

(i) As an employer, you must not alter a drug or alcohol test result transmitted to you by an MRO, BAT, or C/TPA.

§ 40.25 -- Must an employer check on the drug and alcohol testing record of employees it is intending to use to perform safety-sensitive duties?

(a) Yes, as an employer, you must, after obtaining an employee's written consent, request the information about the employee listed in paragraph (b) of this section. This requirement applies only to employees seeking to begin performing safety-sensitive duties for you for the first time (i.e., a new hire, an employee transfers into a safety-sensitive position). If the employee refuses to provide this written consent, you must not permit the employee to perform safety-sensitive functions.

(b) You must request the information listed in this paragraph (b) from DOT-regulated employers who have employed the employee during any period during the two years before the date of the employee's application or transfer:
   (1) Alcohol tests with a result of 0.04 or higher alcohol concentration;
   (2) Verified positive drug tests;
   (3) Refusals to be tested (including verified adulterated or substituted drug test results);
   (4) Other violations of DOT agency drug and alcohol testing regulations; and
   (5) With respect to any employee who violated a DOT drug and alcohol regulation, documentation of the employee's successful completion of DOT return-to-duty requirements (including follow-up tests). If the previous employer does not have information about the return-to-duty process (e.g., an employer who did not hire an employee who tested positive on a pre-employment test), you must seek to obtain this information from the employee.

(c) The information obtained from a previous employer includes any drug or alcohol test information obtained from previous employers under this section or other applicable DOT agency regulations.

(d) If feasible, you must obtain and review this information before the employee first performs safety-sensitive functions. If this is not feasible, you must obtain and review the information as soon as possible. However, you must not permit the employee to perform safety-sensitive functions after 30 days from the date on which the employee first performed safety-sensitive functions, unless you have obtained or made and documented a good faith effort to obtain this information.

(e) If you obtain information that the employee has violated a DOT agency drug and alcohol regulation, you must not use the employee to perform safety-sensitive functions unless you also obtain information that the employee has subsequently complied with the return-to-duty requirements of Subpart O of this part and DOT agency drug and alcohol regulations.
You must provide to each of the employers from whom you request information under paragraph (b) of this section written consent for the release of the information cited in paragraph (a) of this section.

The release of information under this section must be in any written form (e.g., fax, e-mail, letter) that ensures confidentiality. As the previous employer, you must maintain a written record of the information released, including the date, the party to whom it was released, and a summary of the information provided.

If you are an employer from whom information is requested under paragraph (b) of this section, you must, after reviewing the employee's specific, written consent, immediately release the requested information to the employer making the inquiry.

As the employer requesting the information required under this section, you must maintain a written, confidential record of the information you obtain or of the good faith efforts you made to obtain the information. You must retain this information for three years from the date of the employee's first performance of safety-sensitive duties for you.

As the employer, you must also ask the employee whether he or she has tested positive, or refused to test, on any pre-employment drug or alcohol test administered by an employer to which the employee applied for, but did not obtain, safety-sensitive transportation work covered by DOT agency drug and alcohol testing rules during the past two years. If the employee admits that he or she had a positive test or a refusal to test, you must not use the employee to perform safety-sensitive functions for you, until and unless the employee documents successful completion of the return-to-duty process (see paragraphs (b)(5) and (e) of this section).

§ 40.27 -- Where is other information on employer responsibilities found in this regulation?

You can find other information on the responsibilities of employers in the following sections of this part:

§ 40.3-Definition; § 40.35-Information about DERs that employers must provide collectors; § 40.45-Modifying CCFs, Use of foreign-language CCFs; § 40.47-Use of non-Federal forms for DOT tests or Federal CCFs for non-DOT tests; § 40.67-Requirements for direct observation; §§ 40.103-40.105-Blind specimen requirements; § 40.173-Responsibility to ensure test of split specimen; § 40.193-Action in "shy bladder" situations; § 40.197-Actions following report of a dilute specimen; § 40.207-Actions following a report of a cancelled drug test; § 40.209-Actions following and consequences of non-fatal flaws in drug tests; § 40.215-Information about DERs that employers must provide BATs and STTs; § 40.225-Modifying ATFs; use of foreign-language ATFs; § 40.227-Use of non-DOT forms for DOT tests or DOT ATFs for non-DOT tests; § 40.235 (c) and (d)-responsibility to follow instructions for ASDs; § 40.255 (b)-receipt and storage of alcohol test information; § 40.265 (c)-(e)-actions in "shy lung" situations; § 40.267-Cancellation of alcohol tests; § 40.271-Actions in "correctable flaw" situations in alcohol tests;

§ 40.273-Actions following cancelled tests in alcohol tests; § 40.275-Actions in "non-fatal flaw" situations in alcohol tests; §§ 40.287-40.289-Responsibilities concerning SAP services; §§ 40.295-40.297-Prohibition on seeking second SAP evaluation or changing SAP recommendation; § 40.303-Responsibilities concerning aftercare recommendations; § 40.305-Responsibilities concerning return-to-duty decision; § 40.309-Responsibilities concerning follow-up tests;
Subpart C—Urine Collection Personnel

§ 40.31 -- Who may collect urine specimens for DOT drug testing?
(a) Collectors meeting the requirements of this subpart are the only persons authorized to collect urine specimens for DOT drug testing.
(b) A collector must meet training requirements of § 40.33.
(c) As the immediate supervisor of an employee being tested, you may not act as the collector when that employee is tested, unless no other collector is available and you are permitted to do so under DOT agency drug and alcohol regulations.
(d) You must not act as the collector for the employee being tested if you work for a HHS-certified laboratory (e.g., as a technician or accessioner) and could link the employee with a urine specimen, drug testing result, or laboratory report.

§ 40.33 -- What training requirements must a collector meet?
To be permitted to act as a collector in the DOT drug testing program, you must meet each of the requirements of this section:
(a) Basic information. You must be knowledgeable about this part, the current "DOT Urine Specimen Collection Procedures Guidelines," and DOT agency regulations applicable to the employers for whom you perform collections, and you must keep current on any changes to these materials. The DOT Urine Specimen Collection Procedures Guidelines document is available from ODAPC (Department of Transportation, 400 7th Street, SW., Room 10403, Washington DC, 20590, 202-366-3784, or on the ODAPC web site (http://www.dot.gov/ost/dapc).
(b) Qualification training. You must receive qualification training meeting the requirements of this paragraph. Qualification training must provide instruction on the following subjects:
   (1) All steps necessary to complete a collection correctly and the proper completion and transmission of the CCF;
   (2) "Problem" collections (e.g., situations like "shy bladder" and attempts to tamper with a specimen);
   (3) Fatal flaws, correctable flaws, and how to correct problems in collections; and
   (4) The collector's responsibility for maintaining the integrity of the collection process, ensuring the privacy of employees being tested, ensuring the security of the specimen, and avoiding conduct or statements that could be viewed as offensive or inappropriate;
(c) Initial Proficiency Demonstration. Following your completion of qualification training under paragraph (b) of this section, you must demonstrate proficiency in collections under this part by completing five consecutive error-free mock collections.
   (1) The five mock collections must include two uneventful collection scenarios, one insufficient quantity of urine scenario, one temperature out of range scenario, and one scenario in which the employee refuses to sign the CCF and initial the specimen bottle tamper-evident seal.
(2) Another person must monitor and evaluate your performance, in person or by a means that provides real-time observation and interaction between the instructor and trainee, and attest in writing that the mock collections are "error-free." This person must be an individual who has demonstrated necessary knowledge, skills, and abilities by-

(i) Regularly conducting DOT drug test collections for a period of at least a year;

(ii) Conducting collector training under this part for a year; or

(iii) Successfully completing a "train the trainer" course.

(d) Schedule for qualification training and initial proficiency demonstration. The following is the schedule for qualification training and the initial proficiency demonstration you must meet:

(1) If you became a collector before August 1, 2001, and you have already met the requirements of paragraphs (b) and (c) of this section, you do not have to meet them again.

(2) If you became a collector before August 1, 2001, and have yet to meet the requirements of paragraphs (b) and (c) of this section, you must do so no later than January 31, 2003.

(3) If you become a collector on or after August 1, 2001, you must meet the requirements of paragraphs (b) and (c) of this section before you begin to perform collector functions.

(e) Refresher training. No less frequently than every five years from the date on which you satisfactorily complete the requirements of paragraphs (b) and (c) of this section, you must complete refresher training that meets all the requirements of paragraphs (b) and (c) of this section.

(f) Error Correction Training. If you make a mistake in the collection process that causes a test to be cancelled (i.e., a fatal or uncorrected flaw), you must undergo error correction training. This training must occur within 30 days of the date you are notified of the error that led to the need for retraining.

(i) Error correction training must be provided and your proficiency documented in writing by a person who meets the requirements of paragraph (c)(2) of this section.

(ii) Error correction training is required to cover only the subject matter area(s) in which the error that caused the test to be cancelled occurred.

(iii) As part of the error correction training, you must demonstrate your proficiency in the collection procedures of this part by completing three consecutive error-free mock collections. The mock collections must include one uneventful scenario and two scenarios related to the area(s) in which your error(s) occurred. The person providing the training must monitor and evaluate your performance and attest in writing that the mock collections were "error-free."

(g) Documentation. You must maintain documentation showing that you currently meet all requirements of this section. You must provide this documentation on request to DOT agency representatives and to employers and C/TPAs who are using or negotiating to use your services.
§ 40.35 -- What information about the DER must employers provide to collectors?

As an employer, you must provide to collectors the name and telephone number of the appropriate DER (and C/TPA, where applicable) to contact about any problems or issues that may arise during the testing process.

§ 40.37 -- Where is other information on the role of collectors found in this regulation?

You can find other information on the role and functions of collectors in the following sections of this part:

§ 40.3-Definition; § 40.43-Steps to prepare and secure collection sites; §§ 40.45-40.47-Use of CCF; §§ 40.49-40.51-Use of collection kit and shipping materials; §§ 40.61-40.63-Preliminary steps in collections; § 40.65-Role in checking specimens; § 40.67-Role in directly observed collections; § 40.69-Role in monitored collections; § 40.71-Role in split specimen collections; § 40.73-Chain of custody completion and finishing the collection process; § 40.103-Processing blind specimens; § 40.191-Action in case of refusals to take test; § 40.193-Action in "shy bladder" situations; §§ 40.199-40.205-Collector errors in tests, effects, and means of correction.

Subpart D--Collection Sites, Forms, Equipment and Supplies Used in DOT Urine Collections

§ 40.41 -- Where does a urine collection for a DOT drug test take place?

(a) A urine collection for a DOT drug test must take place in a collection site meeting the requirements of this section.

(b) If you are operating a collection site, you must ensure that it meets the security requirements of § 40.43.

(c) If you are operating a collection site, you must have all necessary personnel, materials, equipment, facilities and supervision to provide for the collection, temporary storage, and shipping of urine specimens to a laboratory, and a suitable clean surface for writing.

(d) Your collection site must include a facility for urination described in either paragraph (e) or paragraph (f) of this section.

(e) The first, and preferred, type of facility for urination that a collection site may include is a single-toilet room, having a full-length privacy door, within which urination can occur.

(1) No one but the employee may be present in the room during the collection, except for the observer in the event of a directly observed collection.

(2) You must have a source of water for washing hands, that, if practicable, should be external to the closed room where urination occurs. If an external source is not available, you may meet this requirement by securing all sources of water and other substances that could be used for adulteration and substitution (e.g., water faucets, soap dispensers) and providing moist towelettes outside the closed room.

(f) The second type of facility for urination that a collection site may include is a multistall restroom.

(1) Such a site must provide substantial visual privacy (e.g., a toilet stall with a partial-length door) and meet all other applicable requirements of this section.

(2) If you use a multi-stall restroom, you must either-
(i) Secure all sources of water and other substances that could be used for adulteration and substitution (e.g., water faucets, soap dispensers) and place bluing agent in all toilets or secure the toilets to prevent access; or

(ii) Conduct all collections in the facility as monitored collections (see § 40.69 for procedures). This is the only circumstance in which you may conduct a monitored collection.

(3) No one but the employee may be present in the multistall restroom during the collection, except for the monitor in the event of a monitored collection or the observer in the event of a directly observed collection.

(g) A collection site may be in a medical facility, a mobile facility (e.g., a van), a dedicated collection facility, or any other location meeting the requirements of this section.

§ 40.43 -- What steps must operators of collection sites take to protect the security and integrity of urine collections?

(a) Collectors and operators of collection sites must take the steps listed in this section to prevent unauthorized access that could compromise the integrity of collections.

(b) As a collector, you must do the following before each collection to deter tampering with specimens:

(1) Secure any water sources or otherwise make them unavailable to employees (e.g., turn off water inlet, tape handles to prevent opening faucets);

(2) Ensure that the water in the toilet is blue;

(3) Ensure that no soap, disinfectants, cleaning agents, or other possible adulterants are present;

(4) Inspect the site to ensure that no foreign or unauthorized substances are present;

(5) Tape or otherwise secure shut any movable toilet tank top, or put bluing in the tank;

(6) Ensure that undetected access (e.g., through a door not in your view) is not possible;

(7) Secure areas and items (e.g., ledges, trash receptacles, paper towel holders, under-sink areas) that appear suitable for concealing contaminants; and

(8) Recheck items in paragraphs (b)(1) through (7) of this section following each collection to ensure the site's continued integrity.

(c) If the collection site uses a facility normally used for other purposes, like a public rest room or hospital examining room, you must, as a collector, also ensure before the collection that:

(1) Access to collection materials and specimens is effectively restricted; and

(2) The facility is secured against access during the procedure to ensure privacy to the employee and prevent distraction of the collector. Limited-access signs must be posted.

(d) As a collector, you must take the following additional steps to ensure security during the collection process:

(1) To avoid distraction that could compromise security, you are limited to conducting a collection for only one employee at a time. However, during the time one employee is in the period for drinking fluids in a "shy bladder" situation (see § 40.193(b)), you may conduct a collection for another employee.
(2) To the greatest extent you can, keep an employee's collection container within view of both you and the employee between the time the employee has urinated and the specimen is sealed.

(3) Ensure you are the only person in addition to the employee who handles the specimen before it is poured into the bottles and sealed with tamper-evident seals.

(4) In the time between when the employee gives you the specimen and when you seal the specimen, remain within the collection site.

(5) Maintain personal control over each specimen and CCF throughout the collection process.

(e) If you are operating a collection site, you must implement a policy and procedures to prevent unauthorized personnel from entering any part of the site in which urine specimens are collected or stored.

(1) Only employees being tested, collectors and other collection site workers, DERs, employee and employer representatives authorized by the employer (e.g., employer policy, collective bargaining agreement), and DOT agency representatives are authorized persons for purposes of this paragraph (e).

(2) Except for the observer in a directly observed collection or the monitor in the case of a monitored collection, you must not permit anyone to enter the urination facility in which employees provide specimens.

(3) You must ensure that all authorized persons are under the supervision of a collector at all times when permitted into the site.

(4) You or the collector may remove any person who obstructs, interferes with, or causes a delay in the collection process.

(f) If you are operating a collection site, you must minimize the number of persons handling specimens.

§ 40.45 -- What form is used to document a DOT urine collection?

(a) The Federal Drug Testing Custody and Control Form (CCF) must be used to document every urine collection required by the DOT drug testing program. The CCF must be a five-part carbonless manifold form. You may view this form on the Department's web site (http://www.dot.gov/ost/dapc) or the HHS web site (http://www.health.org/workpl.htm).

(b) As a participant in the DOT drug testing program, you are not permitted to modify or revise the CCF except as follows:

(1) You may include, in the area outside the border of the form, other information needed for billing or other purposes necessary to the collection process.

(2) The CCF must include the names, addresses, telephone numbers and fax numbers of the employer and the MRO, which may be preprinted, typed, or handwritten. The MRO information must include the specific physician's name and address, as opposed to only a generic clinic, health care organization, or company name. This information is required, and it is prohibited for an employer, collector, service agent or any other party to omit it. In addition, a C/TPA's name, address, fax number, and telephone number may be included, but is not required.

(3) As an employer, you may add the name of the DOT agency under whose authority the test occurred as part of the employer information.

(4) As a collector, you may use a CCF with your name, address, telephone number, and fax number preprinted, but under no circumstances may you sign the form before the collection event.
Under no circumstances may the CCF transmit personal identifying information about an employee (other than a social security number (SSN) or other employee identification (ID) number) to a laboratory.

As an employer, you may use an equivalent foreign-language version of the CCF approved by ODAPC. You may use such a non-English language form only in a situation where both the employee and collector understand and can use the form in that language.

§ 40.47 -- May employers use the CCF for non-DOT collections or non-Federal forms for DOT collections?
(a) No, as an employer, you are prohibited from using the CCF for non-DOT urine collections. You are also prohibited from using non-Federal forms for DOT urine collections. Doing either subjects you to enforcement action under DOT agency regulations.
(b) (1) In the rare case where the collector, either by mistake or as the only means to conduct a test under difficult circumstances (e.g., post-accident or reasonable suspicion test with insufficient time to obtain the CCF), uses a non-Federal form for a DOT collection, the use of a non-Federal form does not present a reason for the laboratory to reject the specimen for testing or for an MRO to cancel the result.
   (2) The use of the non-DOT form is a "correctable flaw." As an MRO, to correct the problem you must follow the procedures of § 40.205(b)(2).

§ 40.49 -- What materials are used to collect urine specimens?
For each DOT drug test, you must use a collection kit meeting the requirements of Appendix A of this part.

§ 40.51 -- What materials are used to send urine specimens to the laboratory?
(a) Except as provided in paragraph (b) of this section, you must use a shipping container that adequately protects the specimen bottles from shipment damage in the transport of specimens from the collection site to the laboratory.
(b) You are not required to use a shipping container if a laboratory courier hand-delivers the specimens from the collection site to the laboratory.

Subpart E--Urine Specimen Collections

§ 40.61 -- What are the preliminary steps in the collection process?
As the collector, you must take the following steps before actually beginning a collection:
(a) When a specific time for an employee's test has been scheduled, or the collection site is at the employee's work site, and the employee does not appear at the collection site at the scheduled time, contact the DER to determine the appropriate interval within which the DER has determined the employee is authorized to arrive. If the employee's arrival is delayed beyond that time, you must notify the DER that the employee has not reported for testing. In a situation where a C/TPA has notified an owner/operator or other individual employee to report for testing and the employee does not appear, the C/TPA must notify the employee that he or she has refused to test (see § 40.191(a)(1)).
(b) Ensure that, when the employee enters the collection site, you begin the testing process without undue delay. For example, you must not wait because the employee says
he or she is not ready or is unable to urinate or because an authorized employer or
employee representative is delayed in arriving.

(1) If the employee is also going to take a DOT alcohol test, you must, to the
greatest extent practicable, ensure that the alcohol test is completed before the urine
collection process begins.

Example to Paragraph (b)(1): An employee enters the test site for both a drug and an
alcohol test. Normally, the collector would wait until the BAT had completed the alcohol
test process before beginning the drug test process. However, there are some situations in
which an exception to this normal practice would be reasonable. One such situation
might be if several people were waiting for the BAT to conduct alcohol tests, but a drug
testing collector in the same facility were free. Someone waiting might be able to
complete a drug test without unduly delaying his or her alcohol test. Collectors and BATs
should work together, however, to ensure that post-accident and reasonable suspicion
alcohol tests happen as soon as possible (e.g., by moving the employee to the head of the
line for alcohol tests).

(2) If the employee needs medical attention (e.g., an injured employee in an
emergency medical facility who is required to have a post-accident test), do not delay this
treatment to collect a specimen.

(3) You must not collect, by catheterization or other means, urine from an
unconscious employee to conduct a drug test under this part. Nor may you catheterize a
conscious employee. However, you must inform an employee who normally voids
through self-catheterization that the employee is required to provide a specimen in that
manner.

(4) If, as an employee, you normally void through self-catheterization, and
decline to do so, this constitutes a refusal to test.

(c) Require the employee to provide positive identification. You must see a photo ID
issued by the employer (other than in the case of an owner-operator or other self-
employed individual) or a Federal, state, or local government (e.g., a driver's license).
You may not accept faxes or photocopies of identification. Positive identification by an
employer representative (not a co-worker or another employee being tested) is also
acceptable. If the employee cannot produce positive identification, you must contact a
DER to verify the identity of the employee.

(d) If the employee asks, provide your identification to the employee. Your
identification must include your name and your employer's name, but does not have to
include your picture, address, or telephone number.

(e) Explain the basic collection procedure to the employee, including showing the
employee the instructions on the back of the CCF.

(f) Direct the employee to remove outer clothing (e.g., coveralls, jacket, coat, hat)
that could be used to conceal items or substances that could be used to tamper with a
specimen. You must also direct the employee to leave these garments and any briefcase,
purse, or other personal belongings with you or in a mutually agreeable location. You
must advise the employee that failure to comply with your directions constitutes a refusal
to test.

(1) If the employee asks for a receipt for any belongings left with you, you must
provide one.

(2) You must allow the employee to keep his or her wallet.

(3) You must not ask the employee to remove other clothing (e.g., shirts, pants,
dresses, underwear), to remove all clothing, or to change into a hospital or examination
gown (unless the urine collection is being accomplished simultaneously with a DOT agency-authorized medical examination).

(4) You must direct the employee to empty his or her pockets and display the items in them to ensure that no items are present which could be used to adulterate the specimen. If nothing is there that can be used to adulterate a specimen, the employee can place the items back into his or her pockets. As the employee, you must allow the collector to make this observation.

(5) If, in your duties under paragraph (f)(4) of this section, you find any material that could be used to tamper with a specimen, you must:

(i) Determine if the material appears to be brought to the collection site with the intent to alter the specimen, and, if it is, conduct a directly observed collection using direct observation procedures (see § 40.67); or

(ii) Determine if the material appears to be inadvertently brought to the collection site (e.g., eye drops), secure and maintain it until the collection process is completed and conduct a normal (i.e., unobserved) collection.

(g) You must instruct the employee not to list medications that he or she is currently taking on the CCF. (The employee may make notes of medications on the back of the employee copy of the form for his or her own convenience, but these notes must not be transmitted to anyone else.)

§ 40.63 -- What steps does the collector take in the collection process before the employee provides a urine specimen?

As the collector, you must take the following steps before the employee provides the urine specimen:

(a) Complete Step 1 of the CCF.

(b) Instruct the employee to wash and dry his or her hands at this time. You must tell the employee not to wash his or her hands again until after delivering the specimen to you. You must not give the employee any further access to water or other materials that could be used to adulterate or dilute a specimen.

(c) Select, or allow the employee to select, an individually wrapped or sealed collection container from collection kit materials. Either you or the employee, with both of you present, must unwrap or break the seal of the collection container. You must not unwrap or break the seal on any specimen bottle at this time. You must not allow the employee to take anything from the collection kit into the room used for urination except the collection container.

(d) Direct the employee to go into the room used for urination, provide a specimen of at least 45 mL, not flush the toilet, and return to you with the specimen as soon as the employee has completed the void.

(1) Except in the case of an observed or a monitored collection (see §§ 40.67 and 40.69), neither you nor anyone else may go into the room with the employee.

(2) As the collector, you may set a reasonable time limit for voiding.

(e) You must pay careful attention to the employee during the entire collection process to note any conduct that clearly indicates an attempt to tamper with a specimen (e.g., substitute urine in plain view or an attempt to bring into the collection site an adulterant or urine substitute). If you detect such conduct, you must require that a collection take place immediately under direct observation (see § 40.67) and note the conduct and the fact that the collection was observed in the "Remarks" line of the CCF (Step 2). You must also, as soon as possible, inform the DER and collection site
supervisor that a collection took place under direct observation and the reason for doing so.

§ 40.65 -- What does the collector check for when the employee presents a specimen?

As a collector, you must check the following when the employee gives the collection container to you:

(a) **Sufficiency of specimen.** You must check to ensure that the specimen contains at least 45 mL of urine.

   (1) If it does not, you must follow "shy bladder" procedures (see § 40.193(b)).
   (2) When you follow "shy bladder" procedures, you must discard the original specimen, unless another problem (i.e., temperature out of range, signs of tampering) also exists.
   (3) You are never permitted to combine urine collected from separate voids to create a specimen.
   (4) You must discard any excess urine.

(b) **Temperature.** You must check the temperature of the specimen no later than four minutes after the employee has given you the specimen.

   (1) The acceptable temperature range is 32-38 [degrees] C/90-100 [degrees] F.
   (2) You must determine the temperature of the specimen by reading the temperature strip attached to the collection container.
   (3) If the specimen temperature is within the acceptable range, you must mark the "Yes" box on the CCF (Step 2).
   (4) If the specimen temperature is outside the acceptable range, you must mark the "No" box and enter in the "Remarks" line (Step 2) your findings about the temperature.
   (5) If the specimen temperature is outside the acceptable range, you must immediately conduct a new collection using direct observation procedures (see § 40.67).
   (6) In a case where a specimen is collected under direct observation because of the temperature being out of range, you must process both the original specimen and the specimen collected using direct observation and send the two sets of specimens to the laboratory. This is true even in a case in which the original specimen has insufficient volume but the temperature is out of range. You must also, as soon as possible, inform the DER and collection site supervisor that a collection took place under direct observation and the reason for doing so.
   (7) In a case where the employee refuses to provide another specimen (see § 40.191(a)(3)) or refuses to provide another specimen under direct observation (see § 40.191(a)(4)), you must notify the DER. As soon as you have notified the DER, you must discard any specimen the employee has provided previously during the collection procedure.

(c) **Signs of tampering.** You must inspect the specimen for unusual color, presence of foreign objects or material, or other signs of tampering (e.g., if you notice any unusual odor).

   (1) If it is apparent from this inspection that the employee has tampered with the specimen (e.g., blue dye in the specimen, excessive foaming when shaken, smell of bleach), you must immediately conduct a new collection using direct observation procedures (see § 40.67).
   (2) In a case where a specimen is collected under direct observation because of showing signs of tampering, you must process both the original specimen and the
specimen collected using direct observation and send the two sets of specimens to the laboratory. This is true even in a case in which the original specimen has insufficient volume but it shows signs of tampering. You must also, as soon as possible, inform the DER and collection site supervisor that a collection took place under direct observation and the reason for doing so.

(3) In a case where the employee refuses to provide another specimen (see § 40.191(a)(3)) or refuses to provide a specimen under direct observation (see § 40.193(a)(4)), you must notify the DER. As soon as you have notified the DER, you must discard any specimen the employee has provided previously during the collection procedure.

§ 40.67 − When and how is a directly observed collection conducted?
(a) As an employer you must direct an immediate collection under direct observation with no advance notice to the employee, if:
   (1) The laboratory reported to the MRO that a specimen is invalid, and the MRO reported to you that there was not an adequate medical explanation for the result; or
   (2) The MRO reported to you that the original positive, adulterated, or substituted test result had to be cancelled because the test of the split specimen could not be performed.
(b) As an employer, you may direct a collection under direct observation of an employee if the drug test is a return-to-duty test or a follow-up test.
(c) As a collector, you must immediately conduct a collection under direct observation if:
   (1) You are directed by the DER to do so (see paragraphs (a) and (c) of this section); or
   (2) You observed materials brought to the collection site or the employee's conduct clearly indicates an attempt to tamper with a specimen (see §§ 40.61(f)(5)(i) and 40.63(e)); or
   (3) The temperature on the original specimen was out of range (see § 40.65(b)(5)); or (4) The original specimen appeared to have been tampered with (see § 40.65(c)(1)).
(d) (1) As the employer, you must explain to the employee the reason for a directly observed collection under paragraph (a) or (b) of this section.
   (2) As the collector, you must explain to the employee the reason under this part for a directly observed collection under paragraphs (c)(2) through (4) of this section.
(e) As the collector, you must complete a new CCF for the directly observed collection.
   (1) You must mark the "reason for test" block (Step 1) the same as for the first collection.
   (2) You must check the "Observed, (Enter Remark)" box and enter the reason (see § 40.67(b)) in the "Remarks" line (Step 2).
(f) In a case where two sets of specimens are being sent to the laboratory because of suspected tampering with the specimen at the collection site, enter on the "Remarks" line of the CCF (Step 2) for each specimen a notation to this effect (e.g., collection 1 of 2, or 2 of 2) and the specimen ID number of the other specimen.
(g) As the collector, you must ensure that the observer is the same gender as the employee. You must never permit an opposite gender person to act as the observer. The
observer can be a different person from the collector and need not be a qualified collector.

(h) As the collector, if someone else is to observe the collection (e.g., in order to ensure a same gender observer), you must verbally instruct that person to follow procedures at paragraphs (i) and (j) of this section. If you, the collector, are the observer, you too must follow these procedures.

(i) As the observer, you must watch the employee urinate into the collection container. Specifically, you are to watch the urine go from the employee's body into the collection container.

(j) As the observer but not the collector, you must not take the collection container from the employee, but you must observe the specimen as the employee takes it to the collector.

(k) As the collector, when someone else has acted as the observer, you must include the observer's name in the "Remarks" line of the CCF (Step 2).

(l) As the employee, if you decline to allow a directly observed collection required or permitted under this section to occur, this is a refusal to test.

§ 40.69 -- How is a monitored collection conducted?

(a) As the collector, you must secure the room being used for the monitored collection so that no one except the employee and the monitor can enter it until after the collection has been completed.

(b) As the collector, you must ensure that the monitor is the same gender as the employee, unless the monitor is a medical professional (e.g., nurse, doctor, physician's assistant). The monitor can be a different person from the collector and need not be a qualified collector.

(c) As the collector, if someone else is to monitor the collection (e.g., in order to ensure a same gender monitor), you must verbally instruct that person to follow procedures at paragraphs (d) and (e) of this section. If you, the collector, are the observer, you too must follow these procedures.

(d) As the monitor, you must not watch the employee urinate into the collection container. If you hear sounds or make other observations indicating an attempt to tamper with a specimen, there must be an additional collection under direct observation (see §§ 40.63(e), 40.65(c), and 40.67(b)).

(e) As the monitor, you must ensure that the employee takes the collection container directly to the collector as soon as the employee has exited the enclosure.

(f) As the collector, when someone else has acted as the monitor, you must note that person's name in the "Remarks" line of the CCF (Step 2).

(g) As the employee being tested, if you decline to permit a collection authorized under this section to be monitored, it is a refusal to test.

§ 40.71 -- How does the collector prepare the specimens?

(a) All collections under DOT agency drug testing regulations must be split specimen collections.

(b) As the collector, you must take the following steps, in order, after the employee brings the urine specimen to you. You must take these steps in the presence of the employee.

1. Check the box on the CCF (Step 2) indicating that this was a split specimen collection.
(2) You, not the employee, must first pour at least 30 mL of urine from the collection container into one specimen bottle, to be used for the primary specimen.

(3) You, not the employee, must then pour at least 15 mL of urine from the collection container into the second specimen bottle to be used for the split specimen.

(4) You, not the employee, must place and secure (i.e., tighten or snap) the lids/caps on the bottles.

(5) You, not the employee, must seal the bottles by placing the tamper-evident bottle seals over the bottle caps/lids and down the sides of the bottles.

(6) You, not the employee, must then write the date on the tamper-evident bottle seals.

(7) You must then ensure that the employee initials the tamper-evident bottle seals for the purpose of certifying that the bottles contain the specimens he or she provided. If the employee fails or refuses to do so, you must note this in the "Remarks" line of the CCF (Step 2) and complete the collection process.

§ 40.73 -- How is the collection process completed?
(a) As the collector, you must do the following things to complete the collection process. You must complete the steps called for in paragraphs (a)(1) through (a)(7) of this section in the employee's presence.

(1) Direct the employee to read and sign the certification statement on Copy 2 (Step 5) of the CCF and provide date of birth, printed name, and day and evening contact telephone numbers. If the employee refuses to sign the CCF or to provide date of birth, printed name, or telephone numbers, you must note this in the "Remarks" line (Step 2) of the CCF, and complete the collection. If the employee refuses to fill out any information, you must, as a minimum, print the employee's name in the appropriate place.

(2) Complete the chain of custody on the CCF (Step 5) by printing your name (note: you may pre-print your name), recording the time and date of the collection, signing the statement, and entering the name of the delivery service transferring the specimen to the laboratory.

(3) Ensure that all copies of the CCF are legible and complete.

(4) Remove Copy 5 of the CCF and give it to the employee.

(5) Place the specimen bottles and Copy 1 of the CCF in the appropriate pouches of the plastic bag.

(6) Secure both pouches of the plastic bag.

(7) Advise the employee that he or she may leave the collection site.

(8) To prepare the sealed plastic bag containing the specimens and CCF for shipment you must:

(i) Place the sealed plastic bag in a shipping container (e.g., standard courier box) designed to minimize the possibility of damage during shipment. (More than one sealed plastic bag can be placed into a single shipping container if you are doing multiple collections.)

(ii) Seal the container as appropriate.

(iii) If a laboratory courier hand-delivers the specimens from the collection site to the laboratory, prepare the sealed plastic bag for shipment as directed by the courier service.

(9) Send Copy 2 of the CCF to the MRO and Copy 4 to the DER. You must fax or otherwise transmit these copies to the MRO and DER within 24 hours or during the next
business day. Keep Copy 3 for at least 30 days, unless otherwise specified by applicable
DOT agency regulations.
(b) As a collector or collection site, you must ensure that each specimen you collect
is shipped to a laboratory as quickly as possible, but in any case within 24 hours or
during the next business day.

Subpart F—Drug Testing Laboratories

§ 40.81 — What laboratories may be used for DOT drug testing?
(a) As a drug testing laboratory located in the U.S., you are permitted to participate in
DOT drug testing only if you are certified by HHS under the National Laboratory
Certification Program (NLCP) for all testing required under this part.
(b) As a drug testing laboratory located in Canada or Mexico which is not certified by
HHS under the NLCP, you are permitted to participate in DOT drug testing only if:
   (1) The DOT, based on a written recommendation from HHS, has approved your
       laboratory as meeting HHS laboratory certification standards or deemed your laboratory
       fully equivalent to a laboratory meeting HHS laboratory certification standards for all
       testing required under this part; or
   (2) The DOT, based on a written recommendation from HHS, has recognized a
       Canadian or Mexican certifying organization as having equivalent laboratory certification
       standards and procedures to those of HHS, and the Canadian or Mexican certifying
       organization has certified your laboratory under those equivalent standards and
       procedures.
(c) As a laboratory participating in the DOT drug testing program, you must comply
    with the requirements of this part. You must also comply with all applicable requirements
    of HHS in testing DOT specimens, whether or not the HHS requirements are explicitly
    stated in this part.
(d) If DOT determines that you are in noncompliance with this part, you could be
    subject to PIE proceedings under Subpart R of this part. If the Department issues a PIE
    with respect to you, you are ineligible to participate in the DOT drug testing program
    even if you continue to meet the requirements of paragraph (a) or (b) of this section.

§ 40.83 -- How do laboratories process incoming specimens?
As the laboratory, you must do the following when you receive a DOT specimen:
(a) You are authorized to receive only the laboratory copy of the CCF. You are not
    authorized to receive other copies of the CCF nor any copies of the alcohol testing form.
(b) You must comply with applicable provisions of the HHS Guidelines con
    cerning accessioning and processing urine drug specimens.
(c) You must inspect each specimen and CCF for the following "fatal flaws:"
   (1) The specimen ID numbers on the specimen bottle and the CCF do not match;
   (2) The specimen bottle seal is broken or shows evidence of tampering, unless a
       split specimen can be redesignated (see paragraph (g) of this section);
   (3) The collector's printed name and signature are omitted from the CCF; and
   (4) There is an insufficient amount of urine in the primary bottle for analysis,
       unless the specimens can be redesignated (see paragraph (g) of this section).
(d) When you find a specimen meeting the criteria of paragraph (c) of this section,
    you must document your findings and stop the testing process. Report the result in
    accordance with § 40.97(a)(3).
(e) You must inspect each specimen and CCF for the following "correctable flaws":
   (1) The specimen temperature was not checked and the "Remarks" line did not contain an entry regarding the temperature being outside of range; and
   (2) The collector's signature is omitted on the certification statement on the CCF.
(f) Upon finding that a specimen meets the criteria of paragraph (e) of this section, document the flaw and continue the testing process.
   (1) In such a case, you must retain the specimen for a minimum of 5 business days from the date on which you initiated action to correct the flaw.
   (2) You must then attempt to correct the flaw by following the procedures of § 40.205(b).
   (3) If the flaw is not corrected, report the result in accordance with § 40.97(a)(3).
(g) If the CCF is marked indicating that a split specimen collection was collected and if the split specimen does not accompany the primary, has leaked, or is otherwise unavailable for testing, you must still test the primary specimen and follow appropriate procedures outlined in § 40.175(b) regarding the unavailability of the split specimen for testing.
   (1) The primary specimen and the split specimen can be redesignated (i.e., Bottle B is redesignated as Bottle A, and vice-versa) if:
      (i) The primary specimen appears to have leaked out of its sealed bottle and the laboratory believes a sufficient amount of urine exists in the split specimen to conduct all appropriate primary laboratory testing; or
      (ii) The primary specimen is labeled as Bottle B, and the split specimen as Bottle A; or
      (iii) The laboratory opens the split specimen instead of the primary specimen, the primary specimen remains sealed, and the laboratory believes a sufficient amount of urine exists in the split specimen to conduct all appropriate primary laboratory testing; or
      (iv) The primary specimen seal is broken but the split specimen remains sealed and the laboratory believes a sufficient amount of urine exists in the split specimen to conduct all appropriate primary laboratory testing.
   (2) In situations outlined in paragraph (g)(1) of this section, the laboratory shall mark through the "A" and write "B," then initial and date the change. A corresponding change shall be made to the other bottle by marking through the "B" and writing "A," and initializing and dating the change.
(h) A notation shall be made on Copy 1 of the CCF (Step 5a) and on any laboratory internal chain of custody documents, as appropriate, for any fatal or correctable flaw.

§ 40.85 -- What drugs do laboratories test for?
As a laboratory, you must test for the following five drugs or classes of drugs in a DOT drug test. You must not test "DOT specimens" for any other drugs.
(a) Marijuana metabolites.
(b) Cocaine metabolites.
(c) Amphetamines.
(d) Opiate metabolites.
(e) Phencyclidine (PCP).
§ 40.87 -- What are the cutoff concentrations for initial and confirmation tests?
(a) As a laboratory, you must use the cutoff concentrations displayed in the following table for initial and confirmation drug tests. All cutoff concentrations are expressed in nanograms per milliliter (ng/mL). The table follows:

<table>
<thead>
<tr>
<th>Type of drug or metabolite</th>
<th>Initial test</th>
<th>Confirmation test</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Marijuana metabolites</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>(i) Delta-9-tetrahydrocannabinol-9-carboxylic acid (THC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Cocaine metabolites</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>(Benzoylcegonine)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Phencyclidine (PCP)</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>(4) Amphetamines</td>
<td>1000</td>
<td>500</td>
</tr>
<tr>
<td>(i) Amphetamine</td>
<td></td>
<td>500 (Specimen must also contain amphetamine at a concentration of greater than or equal to 200 ng/mL.)</td>
</tr>
<tr>
<td>(ii) Methamphetamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Opiate metabolites</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>(i) Codeine</td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>(ii) Morphine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii) 6-acetylmorphine (6-AM)</td>
<td></td>
<td>10 (Test for 6-AM in the specimen. Conduct this test only when specimen contains morphine at a concentration greater than or equal to 2000 ng/mL.)</td>
</tr>
</tbody>
</table>

(b) On an initial drug test, you must report a result below the cutoff concentration as negative. If the result is at or above the cutoff concentration, you must conduct a confirmation test.
(c) On a confirmation drug test, you must report a result below the cutoff concentration as negative and a result at or above the cutoff concentration as confirmed positive.
(d) You must report quantitative values for morphine or codeine at 15,000 ng/mL or above.

§ 40.89 -- What is validity testing, and are laboratories required to conduct it?
(a) Specimen validity testing is the evaluation of the specimen to determine if it is consistent with normal human urine. The purpose of validity testing is to determine whether certain adulterants or foreign substances were added to the urine, if the urine was diluted, or if the specimen was substituted.
(b) As a laboratory, you must conduct validity testing.
What validity tests must laboratories conduct on primary specimens?

As a laboratory, when you conduct validity testing under § 40.89, you must conduct it in accordance with the requirements of this section.

(a) You must test each primary specimen for creatinine. You must also determine its specific gravity if you find that the creatinine concentration is less than 20 mg/dL.

(b) You must measure the pH of each primary specimen.

(c) You must test each primary specimen to determine if it contains substances that may be used to adulterate the specimen. Your tests must have the capability of determining whether any substance identified in current HHS requirements or specimen validity guidance is present in the specimen.

(d) If you suspect the presence of an interfering substance/adulterant that could make a test result invalid, but you are unable to identify it (e.g., a new adulterant), you must, as the first laboratory, send the specimen to another HHS certified laboratory that has the capability of doing so.

(e) If you identify a substance in a specimen that appears to be an adulterant, but which is not listed in current HHS requirements or guidance, you must report the finding in writing to ODAPC and the Division of Workplace Programs, HHS, within three business days. You must also complete testing of the specimen for drugs, to the extent technically feasible.

(f) You must conserve as much as possible of the specimen for possible future testing.

What criteria do laboratories use to establish that a specimen is dilute or substituted?

(a) As a laboratory you must consider the primary specimen to be dilute if the creatinine concentration is less than 20 mg/dL and the specific gravity is less than 1.003, unless the criteria for a substituted specimen are met.

(b) As a laboratory you must consider the primary specimen to be substituted if the creatinine concentration is less than or equal to 5 mg/dL and the specific gravity is less than or equal to 1.001 or greater than or equal to 1.020.

What criteria do laboratories use to establish that a specimen is adulterated?

(a) As a laboratory, you must consider the primary specimen to be adulterated if you determine that:

(1) A substance that is not expected to be present in human urine is identified in the specimen;

(2) A substance that is expected to be present in human urine is identified at a concentration so high that it is not consistent with human urine; or

(3) The physical characteristics of the specimen are outside the normal expected range for human urine.

(b) In making your determination under paragraph (a) of this section, you must apply the criteria in current HHS requirements or specimen validity guidance.

What do laboratories report and how do they report it?

(a) As a laboratory, you must report the results for each primary specimen tested as one of the following:

(1) Negative;
(2) Negative-dilute;
(3) Rejected for testing, with remark(s);
(4) Positive, with drug(s)/metabolite(s) noted;
(5) Positive, with drug(s)/metabolite(s) noted-dilute;
(6) Adulterated, with remark(s);
(7) Substituted, with remark(s); or
(8) Invalid result, with remark(s).

(b) As a laboratory, you must report laboratory results directly, and only, to the MRO at his or her place of business. You must not report results to or through the DER or a service agent (e.g., C/TPA).

(1) Negative results: You must fax, courier, mail, or electronically transmit a legible image or copy of the fully-completed Copy 1 of the CCF which has been signed by the certifying scientist, or you may provide the laboratory results report electronically (i.e., computer data file).

(i) If you elect to provide the laboratory results report, you must include the following elements, as a minimum, in the report format:
   (A) Laboratory name;
   (B) Employer's name (you may include I.D. or account number; 
   (C) Specimen I.D. number;
   (D) Donor's SSN or employee I.D. number, if provided;
   (E) Reason for test, if provided;
   (F) Date of the collection;
   (G) Date received at the laboratory;
   (H) Date certifying scientist released the results;
   (I) Results (e.g., positive, adulterated) as listed in paragraph (a) of this section; and
   (J) Remarks section, with an explanation of any situation in which a correctable flaw has been corrected.

(ii) The laboratory results report may be released only after review and approval by the certifying scientist and must reflect the same test result information as contained on the CCF signed by the certifying scientist.

(iii) The results report may be transmitted through any means that ensures accuracy and confidentiality. You, as the laboratory, together with the MRO, must ensure that the information is adequately protected from unauthorized access or release, both during transmission and in storage.

(2) Non-negative results: You must fax, courier, mail, or electronically transmit a legible image or copy of the fully-completed Copy 1 of the CCF that has been signed by the certifying scientist. In addition, you may provide the electronic laboratory results report following the format and procedures set forth in paragraphs (b)(1)(i) and (ii) of this section.

(c) In transmitting laboratory results to the MRO, you, as the laboratory, together with the MRO, must ensure that the information is adequately protected from unauthorized access or release, both during transmission and in storage. If the results are provided by fax, the fax connection must have a fixed telephone number accessible only to authorized individuals.

(d) You must transmit test results to the MRO in a timely manner, preferably the same day that review by the certifying scientist is completed.
(e) You must provide quantitative values for confirmed positive drug, adulterated, and substituted test results to the MRO when the MRO requests you to do so in writing. The MRO's request may either be a general request covering all such results you send to the MRO or a specific case-by-case request.

(f) You must provide quantitative values for confirmed opiate results for morphine or codeine at 15,000 ng/mL or above, even if the MRO has not requested quantitative values for the test result.

§ 40.99 -- How long does the laboratory retain specimens after testing?

(a) As a laboratory testing the primary specimen, you must retain a specimen that was reported with positive, adulterated, substituted, or invalid results for a minimum of one year.

(b) You must keep such a specimen in secure, long-term, frozen storage in accordance with HHS requirements.

(c) Within the one-year period, the MRO, the employee, the employer, or a DOT agency may request in writing that you retain a specimen for an additional period of time (e.g., for the purpose of preserving evidence for litigation or a safety investigation). If you receive such a request, you must comply with it. If you do not receive such a request, you may discard the specimen at the end of the year.

(d) If you have not sent the split specimen to another laboratory for testing, you must retain the split specimen for an employee's test for the same period of time that you retain the primary specimen and under the same storage conditions.

(e) As the laboratory testing the split specimen, you must meet the requirements of paragraphs (a) through (d) of this section with respect to the split specimen.

§ 40.101 -- What relationship may a laboratory have with an MRO?

(a) As a laboratory, you may not enter into any relationship with an MRO that creates a conflict of interest or the appearance of a conflict of interest with the MRO's responsibilities for the employer. You may not derive any financial benefit by having an employer use a specific MRO.

(b) The following are examples of relationships between laboratories and MROs that the Department regards as creating conflicts of interest, or the appearance of such conflicts. This following list of examples is not intended to be exclusive or exhaustive:

1. The laboratory employs an MRO who reviews test results produced by the laboratory;
2. The laboratory has a contract or retainer with the MRO for the review of test results produced by the laboratory;
3. The laboratory designates which MRO the employer is to use, gives the employer a slate of MROs from which to choose, or recommends certain MROs;
4. The laboratory gives the employer a discount or other incentive to use a particular MRO;
5. The laboratory has its place of business co-located with that of an MRO or MRO staff who review test results produced by the laboratory; or
6. The laboratory permits an MRO, or an MRO's organization, to have a financial interest in the laboratory.

§ 40.103 -- What are the requirements for submitting blind specimens to a laboratory?
(a) As an employer or C/TPA with an aggregate of 2000 or more DOT-covered employees, you must send blind specimens to laboratories you use. If you have an aggregate of fewer than 2000 DOT-covered employees, you are not required to provide blind specimens.

(b) To each laboratory to which you send at least 100 specimens in a year, you must transmit a number of blind specimens equivalent to one percent of the specimens you send to that laboratory, up to a maximum of 50 blind specimens in each quarter (i.e., January-March, April-June, July-September, October-December). As a C/TPA, you must apply this percentage to the total number of DOT-covered employees' specimens you send to the laboratory. Your blind specimen submissions must be evenly spread throughout the year. The following examples illustrate how this requirement works:

Example 1 to Paragraph (b). You send 2500 specimens to Lab X in Year 1. In this case, you would send 25 blind specimens to Lab X in Year 1. To meet the even distribution requirement, you would send 6 in each of three quarters and 7 in the other.

Example 2 to Paragraph (b). You send 2000 specimens to Lab X and 1000 specimens to Lab Y in Year 1. In this case, you would send 20 blind specimens to Lab X and 10 to Lab Y in Year 1. The even distribution requirement would apply in a similar way to that described in Example 1.

Example 3 to Paragraph (b). Same as Example 2, except that you also send 20 specimens to Lab Z. In this case, you would send blind specimens to Labs X and Y as in Example 2. You would not have to send any blind specimens to Lab Z, because you sent fewer than 100 specimens to Lab Z.

Example 4 to Paragraph (b). You are a C/TPA sending 2000 specimens to Lab X in Year 1. These 2000 specimens represent 200 small employers who have an average of 10 covered employees each. In this case you—not the individual employers-send 20 blind specimens to Lab X in Year 1, again ensuring even distribution. The individual employers you represent are not required to provide any blind specimens on their own.

Example 5 to Paragraph (b). You are a large C/TPA that sends 40,000 specimens to Lab Y in Year 1. One percent of that figure is 400. However, the 50 blind specimen per quarter "cap" means that you need send only 50 blind specimens per quarter, rather than the 100 per quarter you would have to send to meet the one percent rate. Your annual total would be 200, rather than 400, blind specimens.

(c) Approximately 75 percent of the specimens you submit must be blank (i.e., containing no drugs, nor adulterated or substituted). Approximately 15 percent must be positive for one or more of the five drugs involved in DOT tests, and approximately 10 percent must either be adulterated with a substance cited in HHS guidance or substituted (i.e., having specific gravity and creatinine meeting the criteria of § 40.93(b)).

(1) The blind specimens that you submit that contain drugs, that are adulterated with a substance cited in HHS guidance, or that are substituted must be validated as to their contents by the supplier using initial and confirmatory tests.

(2) The supplier must provide information regarding the shelf life of the blind specimens.

(3) If the blind specimen is drug positive, the concentration of drug it contains must be between 1.5 and 2 times the initial drug test cutoff concentration.

(4) If the blind specimen is adulterated with nitrite, the concentration of nitrite it contains must be between 1.5 and 2 times the initial validity test cutoff concentration.

(5) If the blind specimen is adulterated by altering pH, the pH must be less than or equal to 2, or greater than or equal to 12.
(6) If the blind specimen is substituted, the creatinine must be less than or equal to 2, and the specific gravity must be 1.000.

d) You must ensure that each blind specimen is indistinguishable to the laboratory from a normal specimen.

   (1) You must submit blind specimens to the laboratory using the same channels (e.g., via a regular collection site) through which employees' specimens are sent to the laboratory.

   (2) You must ensure that the collector uses a CCF, places fictional initials on the specimen bottle label/seal, indicates for the MRO on Copy 2 that the specimen is a blind specimen, and discards Copies 4 and 5 (employer and employee copies).

   (3) You must ensure that all blind specimens include split specimens.

§ 40.105 -- What happens if the laboratory reports a result different from that expected for a blind specimen?

(a) If you are an employer, MRO, or C/TPA who submits a blind specimen, and if the result reported to the MRO is different from the result expected, you must investigate the discrepancy.

(b) If the unexpected result is a false negative, you must provide the laboratory with the expected results (obtained from the supplier of the blind specimen), and direct the laboratory to determine the reason for the discrepancy.

(c) If the unexpected result is a false positive, you must provide the laboratory with the expected results (obtained from the supplier of the blind specimen), and direct the laboratory to determine the reason for the discrepancy. You must also notify ODAPC of the discrepancy by telephone (202-366-3784) or e-mail (addresses are listed on the ODAPC web site, http://www.dot.gov/ost/dapc). ODAPC will notify HHS who will take appropriate action.

§ 40.107 -- Who may inspect laboratories?

As a laboratory, you must permit an inspection, with or without prior notice, by ODAPC, a DOT agency, or a DOT-regulated employer that contracts with the laboratory for drug testing under the DOT drug testing program, or the designee of such an employer.

§ 40.109 -- What documentation must the laboratory keep, and for how long?

(a) As a laboratory, you must retain all records pertaining to each employee urine specimen for a minimum of two years.

(b) As a laboratory, you must also keep for two years employer-specific data required in § 40.111.

(c) Within the two-year period, the MRO, the employee, the employer, or a DOT agency may request in writing that you retain the records for an additional period of time (e.g., for the purpose of preserving evidence for litigation or a safety investigation). If you receive such a request, you must comply with it. If you do not receive such a request, you may discard the records at the end of the two-year period.

§ 40.111 -- When and how must a laboratory disclose statistical summaries and other information it maintains?

(a) As a laboratory, you must transmit an aggregate statistical summary, by employer, of the data listed in Appendix B to this part to the employer on a semi-annual basis.
The summary must not reveal the identity of any employee.

(2) In order to avoid sending data from which it is likely that information about an employee's test result can be readily inferred, you must not send a summary if the employer has fewer than five aggregate test results.

(3) The summary must be sent by January 20 of each year for July 1 through December 31 of the prior year.

(4) The summary must also be sent by July 20 of each year for January 1 through June 30 of the current year.

(b) When the employer requests a summary in response to an inspection, audit, or review by a DOT agency, you must provide it unless the employer had fewer than five aggregate test results. In that case, you must send the employer a report indicating that not enough testing was conducted to warrant a summary. You may transmit the summary or report by hard copy, fax, or other electronic means.

(c) You must also release information to appropriate parties as provided in §§ 40.329 and 40.331.

§ 40.113 -- Where is other information concerning laboratories found in this regulation?

You can find more information concerning laboratories in several sections of this part:

§ 40.3-Definition; § 40.13-Prohibition on making specimens available for other purposes; § 40.31-Conflicts of interest concerning collectors; § 40.47-Laboratory rejections of test for improper form; § 40.125-Conflicts of interest concerning MROs; § 40.175-Role of first laboratory in split specimen tests; § 40.177-Role of second laboratory in split specimen tests (drugs); § 40.179-Role of second laboratory in split specimen tests (adulterants); § 40.181-Role of second laboratory in split specimen tests (substitution); §§ 40.183-40.185-Transmission of split specimen test results to MRO; §§ 40.201-40.205-Role in correcting errors; § 40.329-Release of information to employees; § 40.331-Limits on release of information; § 40.355-Role with respect to other service agents.

Subpart G--Medical Review Officers and the Verification Process

§ 40.121 -- Who is qualified to act as an MRO?

To be qualified to act as an MRO in the DOT drug testing program, you must meet each of the requirements of this section:

(a) Credentials. You must be a licensed physician (Doctor of Medicine or Osteopathy). If you are a licensed physician in any U.S., Canadian, or Mexican jurisdiction and meet the other requirements of this section, you are authorized to perform MRO services with respect to all covered employees, wherever they are located. For example, if you are licensed as an M.D. in one state or province in the U.S., Canada, or Mexico, you are not limited to performing MRO functions in that state or province, and you may perform MRO functions for employees in other states or provinces without becoming licensed to practice medicine in the other jurisdictions.

(b) Basic knowledge. You must be knowledgeable in the following areas:

(1) You must be knowledgeable about and have clinical experience in controlled substances abuse disorders, including detailed knowledge of alternative medical explanations for laboratory confirmed drug test results.
(2) You must be knowledgeable about issues relating to adulterated and substituted specimens as well as the possible medical causes of specimens having an invalid result.

(3) You must be knowledgeable about this part, the DOT MRO Guidelines, and the DOT agency regulations applicable to the employers for whom you evaluate drug test results, and you must keep current on any changes to these materials. The DOT MRO Guidelines document is available from ODAPC (Department of Transportation, 400 7th Street, SW., Room 10403, Washington, DC 20590, 202-366-3784, or on the ODAPC web site (http://www.dot.gov/ost/dapc)).

(c) Qualification training. You must receive qualification training meeting the requirements of this paragraph (c).

(1) Qualification training must provide instruction on the following subjects:
   (i) Collection procedures for urine specimens;
   (ii) Chain of custody, reporting, and recordkeeping;
   (iii) Interpretation of drug and validity tests results;
   (iv) The role and responsibilities of the MRO in the DOT drug testing program;
   (v) The interaction with other participants in the program (e.g., DERs, SAPs); and
   (vi) Provisions of this part and DOT agency rules applying to employers for whom you review test results, including changes and updates to this part and DOT agency rules, guidance, interpretations, and policies affecting the performance of MRO functions, as well as issues that MROs confront in carrying out their duties under this part and DOT agency rules.

(2) Following your completion of qualification training under paragraph (c)(1) of this section, you must satisfactorily complete an examination administered by a nationally-recognized MRO certification board or subspecialty board for medical practitioners in the field of medical review of DOT-mandated drug tests. The examination must comprehensively cover all the elements of qualification training listed in paragraph (c)(1) of this section.

(3) The following is the schedule for qualification training you must meet:
   (i) If you became an MRO before August 1, 2001, and have already met the qualification training requirement, you do not have to meet it again.
   (ii) If you became an MRO before August 1, 2001, but have not yet met the qualification training requirement, you must do so no later than January 31, 2003.
   (iii) If you become an MRO on or after August 1, 2001, you must meet the qualification training requirement before you begin to perform MRO functions.

(d) Continuing Education. During each three-year period from the date on which you satisfactorily complete the examination under paragraph (c)(2) of this section, you must complete continuing education consisting of at least 12 professional development hours (e.g., Continuing Education Medical Units) relevant to performing MRO functions.

(1) This continuing education must include material concerning new technologies, interpretations, recent guidance, rule changes, and other information about developments in MRO practice, pertaining to the DOT program, since the time you met the qualification training requirements of this section.

(2) Your continuing education activities must include assessment tools to assist you in determining whether you have adequately learned the material.
Documentation. You must maintain documentation showing that you currently meet all requirements of this section. You must provide this documentation on request to DOT agency representatives and to employers and C/TPAs who are using or negotiating to use your services.

§ 40.123 -- What are the MRO's responsibilities in the DOT drug testing program?
   As an MRO, you have the following basic responsibilities:
   (a) Acting as an independent and impartial "gatekeeper" and advocate for the accuracy and integrity of the drug testing process.
   (b) Providing a quality assurance review of the drug testing process for the specimens under your purview. This includes, but is not limited to:
      (1) Ensuring the review of the CCF on all specimen collections for the purposes of determining whether there is a problem that may cause a test to be cancelled (see §§ 40.199-40.203). As an MRO, you are not required to review laboratory internal chain of custody documentation. No one is permitted to cancel a test because you have not reviewed this documentation;
      (2) Providing feedback to employers, collection sites and laboratories regarding performance issues where necessary; and
      (3) Reporting to and consulting with the ODAPC or a relevant DOT agency when you wish DOT assistance in resolving any program issue. As an employer or service agent, you are prohibited from limiting or attempting to limit the MRO's access to DOT for this purpose and from retaliating in any way against an MRO for discussing drug testing issues with DOT.
   (c) You must determine whether there is a legitimate medical explanation for confirmed positive, adulterated, substituted, and invalid drug tests results from the laboratory.
   (d) While you provide medical review of employees' test results, this part does not deem that you have established a doctor-patient relationship with the employees whose tests you review.
   (e) You must act to investigate and correct problems where possible and notify appropriate parties (e.g., HHS, DOT, employers, service agents) where assistance is needed, (e.g., cancelled or problematic tests, incorrect results, problems with blind specimens).
   (f) You must ensure the timely flow of test results and other information to employers.
   (g) You must protect the confidentiality of the drug testing information.
   (h) You must perform all your functions in compliance with this part and other DOT agency regulations.

§ 40.125 -- What relationship may an MRO have with a laboratory?
   As an MRO, you may not enter into any relationship with an employer's laboratory that creates a conflict of interest or the appearance of a conflict of interest with your responsibilities to that employer. You may not derive any financial benefit by having an employer use a specific laboratory. For examples of relationships between laboratories and MROs that the Department views as creating a conflict of interest or the appearance of such a conflict, see § 40.101(b).
§ 40.127 -- What are the MRO's functions in reviewing negative test results?

As the MRO, you must do the following with respect to negative drug test results you receive from a laboratory, prior to verifying the result and releasing it to the DER:

(a) Review Copy 2 of the CCF to determine if there are any fatal or correctable errors that may require you to initiate corrective action or to cancel the test (see §§ 40.199 and 40.203).

(b) Review the negative laboratory test result and ensure that it is consistent with the information contained on the CCF.

(c) Before you report a negative test result, you must have in your possession the following documents:
   (1) Copy 2 of the CCF, a legible copy of it, or any other CCF copy containing the employee's signature; and
   (2) A legible copy (fax, photocopy, image) of Copy 1 of the CCF or the electronic laboratory results report that conveys the negative laboratory test result.

(d) If the copy of the documentation provided to you by the collector or laboratory appears unclear, you must request that the collector or laboratory send you a legible copy.

(e) On Copy 2 of the CCF, place a check mark in the "Negative" box (Step 6), provide your name, and sign, initial, or stamp and date the verification statement.

(f) Report the result in a confidential manner (see §§ 40.163-40.167).

(g) Staff under your direct, personal supervision may conduct the administrative functions of this section for you, but only you can cancel a test.

(1) On specimen results that are reviewed by your staff, you are responsible for assuring the quality of their work.

(2) You are required to personally review at least 5 percent of all CCFs reviewed by your staff on a quarterly basis, including all results that required a corrective action. However, you need not review more than 500 negative results in any quarter.

(3) Your review must, as a minimum, include the CCF, negative laboratory test result, any accompanying corrective documents, and the report sent to the employer. You must correct any errors that you discover. You must take action as necessary to ensure compliance by your staff with this part and document your corrective action. You must attest to the quality assurance review by initialing the CCFs that you review.

(4) You must make these CCFs easily identifiable and retrievable by you for review by DOT agencies.

§ 40.129 -- What are the MRO's functions in reviewing laboratory confirmed positive, adulterated, substituted, or invalid drug test results?

(a) As the MRO, you must do the following with respect to confirmed positive, adulterated, substituted, or invalid drug tests you receive from a laboratory, before you verify the result and release it to the DER:

   (1) Review Copy 2 of the CCF to determine if there are any fatal or correctable errors that may require you to cancel the test (see §§ 40.199 and 40.203). Staff under your direct, personal supervision may conduct this administrative review for you, but only you may verify or cancel a test.

   (2) Review Copy 1 of the CCF and ensure that it is consistent with the information contained on Copy 2, that the test result is legible, and that the certifying scientist signed the form. You are not required to review any other documentation.
generated by the laboratory during their analysis or handling of the specimen (e.g., the laboratory internal chain of custody).

(3) If the copy of the documentation provided to you by the collector or laboratory appears unclear, you must request that the collector or laboratory send you a legible copy.

(4) Except in the circumstances spelled out in § 40.133, conduct a verification interview. This interview must include direct contact in person or by telephone between you and the employee. You may initiate the verification process based on the laboratory results report.

(5) Verify the test result as either negative, positive, test cancelled, or refusal to test because of adulteration or substitution, consistent with the requirements of §§ 40.135-40.145 and 40.159.

(b) Before you report a verified negative, positive, test cancelled, refusal to test because of adulteration or substitution, you must have in your possession the following documents:

1. Copy 2 of the CCF, a legible copy of it, or any other CCF copy containing the employee's signature; and
2. A legible copy (fax, photocopy, image) of Copy 1 of the CCF, containing the certifying scientist's signature.

(c) With respect to verified positive test results, place a check mark in the "Positive" box (Step 6) on Copy 2 of the CCF, indicate the drug(s)/metabolite(s) detected on the "Remarks" line, sign and date the verification statement.

(d) Report the result in a confidential manner (see §§ 40.163-40.167).

(e) With respect to adulteration or substitution test results, check the "refusal to test because:" box (Step 6) on Copy 2 of the CCF, check the "Adulterated" or "Substituted" box, as appropriate, make appropriate annotation in the "Remarks" line, sign and date the verification statement.

(f) As the MRO, your actions concerning reporting confirmed positive, adulterated, or substituted results to the employer before you have completed the verification process are also governed by the stand-down provisions of § 40.21.

1. If an employer has a stand-down policy that meets the requirements of § 40.21, you may report to the DER that you have received an employee's laboratory confirmed positive, adulterated, or substituted test result, consistent with the terms of the waiver the employer received. You must not provide any further details about the test result (e.g., the name of the drug involved).

2. If the employer does not have a stand-down policy that meets the requirements of § 40.21, you must not inform the employer that you have received an employee's laboratory confirmed positive, adulterated, or substituted test result until you verify the test result. For example, as an MRO employed directly by a company, you must not tell anyone on the company's staff or management that you have received an employee's laboratory confirmed test result.

§ 40.131 -- How does the MRO or DER notify an employee of the verification process after a confirmed positive, adulterated, substituted, or invalid test result?

(a) When, as the MRO, you receive a confirmed positive, adulterated, substituted, or invalid test result from the laboratory, you must contact the employee directly (i.e., actually talk to the employee), on a confidential basis, to determine whether the employee wants to discuss the test result. In making this contact, you must explain to the
employee that, if he or she declines to discuss the result, you will verify the test as positive or as a refusal to test because of adulteration or substitution, as applicable.

(b) As the MRO, staff under your personal supervision may conduct this initial contact for you.

1. This staff contact must be limited to scheduling the discussion between you and the employee and explaining the consequences of the employee's declining to speak with you (i.e., that the MRO will verify the test without input from the employee). If the employee declines to speak with you, the staff person must document the employee's decision, including the date and time.

2. A staff person must not gather any medical information or information concerning possible explanations for the test result.

3. A staff person may advise an employee to have medical information (e.g., prescriptions, information forming the basis of a legitimate medical explanation for a confirmed positive test result) ready to present at the interview with the MRO.

4. Since you are required to speak personally with the employee, face-to-face or on the phone, your staff must not inquire if the employee wishes to speak with you.

(c) As the MRO, you or your staff must make reasonable efforts to reach the employee at the day and evening telephone numbers listed on the CCF. Reasonable efforts include, as a minimum, three attempts, spaced reasonably over a 24-hour period, to reach the employee at the day and evening telephone numbers listed on the CCF. If you or your staff cannot reach the employee directly after making these efforts, you or your staff must take the following steps:

1. Document the efforts you made to contact the employee, including dates and times. If both phone numbers are incorrect (e.g., disconnected, wrong number), you may take the actions listed in paragraph (c)(2) of this section without waiting the full 24-hour period.

2. Contact the DER, instructing the DER to contact the employee.

   i. You must simply direct the DER to inform the employee to contact you.

   ii. You must not inform the DER that the employee has a confirmed positive, adulterated, substituted, or invalid test result.

   iii. You must document the dates and times of your attempts to contact the DER, and you must document the name of the DER you contacted and the date and time of the contact.

(d) As the DER, you must attempt to contact the employee immediately, using procedures that protect, as much as possible, the confidentiality of the MRO's request that the employee contact the MRO. If you successfully contact the employee (i.e., actually talk to the employee), you must document the date and time of the contact, and inform the MRO. You must inform the employee that he or she must contact the MRO within the next 72 hours and tell the employee the consequences of failing to do so (see § 40.133(a)(2)).

1. As the DER, you must not inform anyone else working for the employer that you are seeking to contact the employee on behalf of the MRO.

2. If, as the DER, you have made all reasonable efforts to contact the employee but failed to do so, you may place the employee on temporary medically unqualified status or medical leave. Reasonable efforts include, as a minimum, three attempts, spaced reasonably over a 24-hour period, to reach the employee at the day and evening telephone numbers listed on the CCF.
(i) As the DER, you must document the dates and times of these efforts.
(ii) If, as the DER, you are unable to contact the employee within this 24-hour period, you must leave a message for the employee by any practicable means (e.g., voice mail, e-mail, letter) to contact the MRO and inform the MRO of the date and time of this attempted contact.

§ 40.133 -- Under what circumstances may the MRO verify a test as positive, or as a refusal to test because of adulteration or substitution, without interviewing the employee?

(a)  As the MRO, you normally may verify a confirmed positive test (for any drug or drug metabolite, including opiates), or as a refusal to test because of adulteration or substitution, only after interviewing the employee as provided in §§ 40.135-40.145. However, there are three circumstances in which you may verify such a result without an interview:

   (1) You may verify a test result as a positive or refusal to test, as applicable, if the employee expressly declines the opportunity to discuss the test with you. You must maintain complete documentation of this occurrence, including notation of informing, or attempting to inform, the employee of the consequences of not exercising the option to speak with the you.

   (2) You may verify a test result as a positive or refusal to test, as applicable, if the DER has successfully made and documented a contact with the employee and instructed the employee to contact you and more than 72 hours have passed since the time the DER contacted the employee.

   (3) You may verify a test result as a positive or refusal to test, as applicable, if neither you nor the DER, after making and documenting all reasonable efforts, has been able to contact the employee within ten days of the date on which the MRO receives the confirmed test result from the laboratory.

(b)  As the MRO, when you verify a test result as a positive or refusal to test under this section, you must document the date, time and reason, following the instructions in § 40.163.
(c)  As the MRO, after you have verified a test result as a positive or refusal to test under this section and reported the result to the DER, you must allow the employee to present information to you within 60 days of the verification documenting that serious illness, injury, or other circumstances unavoidably precluded contact with the MRO and/or DER in the times provided. On the basis of such information, you may reopen the verification, allowing the employee to present information concerning whether there is a legitimate medical explanation for the confirmed test result.

§ 40.135 -- What does the MRO tell the employee at the beginning of the verification interview?

(a)  As the MRO, you must tell the employee that the laboratory has determined that the employee's test result was positive, adulterated, substituted, or invalid, as applicable. You must also tell the employee of the drugs for which his or her specimen tested positive, or the basis for the finding of adulteration or substitution.
(b)  You must explain the verification interview process to the employee and inform the employee that your decision will be based on information the employee provides in the interview.
(c) You must explain that, if further medical evaluation is needed for the verification process, the employee must comply with your request for this evaluation and that failure to do so is equivalent of expressly declining to discuss the test result.

(d) As the MRO, you must warn an employee who has a confirmed positive, adulterated, substituted or invalid test that you are required to provide to third parties drug test result information and medical information affecting the performance of safety-sensitive duties that the employee gives you in the verification process without the employee's consent (see § 40.327).

1. You must give this warning to the employee before obtaining any medical information as part of the verification process.

2. For purposes of this paragraph (d), medical information includes information on medications or other substances affecting the performance of safety-sensitive duties that the employee reports using or medical conditions the employee reports having.

3. For purposes of this paragraph (d), the persons to whom this information may be provided include the employer, a SAP evaluating the employee as part of the return to duty process (see § 40.293(g)), DOT, another Federal safety agency (e.g., the NTSB), or any state safety agency as required by state law.

(e) You must also advise the employee that, before informing any third party about any medication the employee is using pursuant to a legally valid prescription under the Controlled Substances Act, you will, if the employee consents, contact the prescribing physician to determine if the medication can be changed to one that does not make the employee medically unqualified or does not pose a significant safety risk.

§ 40.137 -- On what basis does the MRO verify test results involving marijuana, cocaine, amphetamines, or PCP?

(a) As the MRO, you must verify a confirmed positive test result for marijuana, cocaine, amphetamines, and/or PCP unless the employee presents a legitimate medical explanation for the presence of the drug(s)/metabolite(s) in his or her system.

(b) You must offer the employee an opportunity to present a legitimate medical explanation in all cases.

(c) The employee has the burden of proof that a legitimate medical explanation exists. The employee must present information meeting this burden at the time of the verification interview. As the MRO, you have discretion to extend the time available to the employee for this purpose for up to five days before verifying the test result, if you determine that there is a reasonable basis to believe that the employee will be able to produce relevant evidence concerning a legitimate medical explanation within that time.

(d) If you determine that there is a legitimate medical explanation, you must verify the test result as negative. Otherwise, you must verify the test result as positive.

(e) In determining whether a legitimate medical explanation exists, you may consider the employee's use of a medication from a foreign country. You must exercise your professional judgment consistently with the following principles:

1. There can be a legitimate medical explanation only with respect to a substance that is obtained legally in a foreign country.

2. There can be a legitimate medical explanation only with respect to a substance that has a legitimate medical use. Use of a drug of abuse (e.g., heroin, PCP, marijuana) or any other substance (see § 40.151(f) and (g)) that cannot be viewed as having a legitimate medical use can never be the basis for a legitimate medical explanation, even if the substance is obtained legally in a foreign country.
(3) Use of the substance can form the basis of a legitimate medical explanation only if it is used consistently with its proper and intended medical purpose.

(4) Even if you find that there is a legitimate medical explanation under this paragraph (e) and verify a test negative, you may have a responsibility to raise fitness-for-duty considerations with the employer (see § 40.327).

§ 40.139 -- On what basis does the MRO verify test results involving opiates?

§ 40.139 -- On what basis does the MRO verify test results involving opiates?

As the MRO, you must proceed as follows when you receive a laboratory confirmed positive opiate result:

(a) If the laboratory detects the presence of 6-acetylmorphine (6-AM) in the specimen, you must verify the test result positive.

(b) If the laboratory detects the presence of either morphine or codeine at 15,000 ng/mL or above, you must verify the test result positive unless the employee presents a legitimate medical explanation for the presence of the drug or drug metabolite in his or her system, as in the case of other drugs (see § 40.137). Consumption of food products (e.g., poppy seeds) must not be considered a legitimate medical explanation for the employee having morphine or codeine at these concentrations. (c) For all other opiate positive results, you must verify a confirmed positive test result for opiates only if you determine that there is clinical evidence, in addition to the urine test, of unauthorized use of any opium, opiate, or opium derivative (i.e., morphine, heroin, or codeine).

(1) As an MRO, it is your responsibility to use your best professional and ethical judgement and discretion to determine whether there is clinical evidence of unauthorized use of opiates. Examples of information that you may consider in making this judgement include, but are not limited to, the following:

(i) Recent needle tracks;

(ii) Behavioral and psychological signs of acute opiate intoxication or withdrawal;

(iii) Clinical history of unauthorized use recent enough to have produced the laboratory test result;

(iv) Use of a medication from a foreign country. See § 40.137(e) for guidance on how to make this determination.

(2) In order to establish the clinical evidence referenced in paragraphs (c)(1)(i) and (ii) of this section, personal observation of the employee is essential.

(i) Therefore, you, as the MRO, must conduct, or cause another physician to conduct, a face-to-face examination of the employee.

(ii) No face-to-face examination is needed in establishing the clinical evidence referenced in paragraph (c)(1)(iii) or (iv) of this section.

(3) To be the basis of a verified positive result for opiates, the clinical evidence you find must concern a drug that the laboratory found in the specimen. (For example, if the test confirmed the presence of codeine, and the employee admits to unauthorized use of hydrocodone, you do not have grounds for verifying the test positive. The admission must be for the substance that was found).

(4) As the MRO, you have the burden of establishing that there is clinical evidence of unauthorized use of opiates referenced in this paragraph (c). If you cannot make this determination (e.g., there is not sufficient clinical evidence or history), you must verify the test as negative. The employee does not need to show you that a legitimate medical explanation exists if no clinical evidence is established.
§ 40.141 -- How does the MRO obtain information for the verification decision?

As the MRO, you must do the following as you make the determinations needed for a verification decision:
(a) You must conduct a medical interview. You must review the employee's medical history and any other relevant biomedical factors presented to you by the employee. You may direct the employee to undergo further medical evaluation by you or another physician.
(b) If the employee asserts that the presence of a drug or drug metabolite in his or her specimen results from taking prescription medication, you must review and take all reasonable and necessary steps to verify the authenticity of all medical records the employee provides. You may contact the employee's physician or other relevant medical personnel for further information.

§ 40.143 -- [Reserved]

§ 40.145 -- On what basis does the MRO verify test results involving adulteration or substitution?
(a) As an MRO, when you receive a laboratory report that a specimen is adulterated or substituted, you must treat that report in the same way you treat the laboratory's report of a confirmed positive test for a drug or drug metabolite.
(b) You must follow the same procedures used for verification of a confirmed positive test for a drug or drug metabolite (see §§ 40.129-40.135, 40.141, 40.151), except as otherwise provided in this section.
(c) In the verification interview, you must explain the laboratory findings to the employee and address technical questions or issues the employee may raise.
(d) You must offer the employee the opportunity to present a legitimate medical explanation for the laboratory findings with respect to presence of the adulterant in, or the creatinine and specific gravity findings for, the specimen.
(e) The employee has the burden of proof that there is a legitimate medical explanation.
   (1) To meet this burden in the case of an adulterated specimen, the employee must demonstrate that the adulterant found by the laboratory entered the specimen through physiological means.
   (2) To meet this burden in the case of a substituted specimen, the employee must demonstrate that he or she did produce or could have produced urine, through physiological means, meeting the creatinine and specific gravity criteria of § 40.93(b).
   (3) The employee must present information meeting this burden at the time of the verification interview. As the MRO, you have discretion to extend the time available to the employee for this purpose for up to five days before verifying the specimen, if you determine that there is a reasonable basis to believe that the employee will be able to produce relevant evidence supporting a legitimate medical explanation within that time.
(f) As the MRO or the employer, you are not responsible for arranging, conducting, or paying for any studies, examinations or analyses to determine whether a legitimate medical explanation exists.
(g) As the MRO, you must exercise your best professional judgment in deciding whether the employee has established a legitimate medical explanation.
(1) If you determine that the employee's explanation does not present a reasonable basis for concluding that there may be a legitimate medical explanation, you must report the test to the DER as a verified refusal to test because of adulteration or substitution, as applicable.

(2) If you believe that the employee's explanation may present a reasonable basis for concluding that there is a legitimate medical explanation, you must direct the employee to obtain, within the five-day period set forth in paragraph (e)(3) of this section, a further medical evaluation. This evaluation must be performed by a licensed physician (the "referral physician"), acceptable to you, with expertise in the medical issues raised by the employee's explanation. (The MRO may perform this evaluation if the MRO has appropriate expertise.)

(i) As the MRO or employer, you are not responsible for finding or paying a referral physician. However, on request of the employee, you must provide reasonable assistance to the employee's efforts to find such a physician. The final choice of the referral physician is the employee's, as long as the physician is acceptable to you.

(ii) As the MRO, you must consult with the referral physician, providing guidance to him or her concerning his or her responsibilities under this section. As part of this consultation, you must provide the following information to the referral physician:

(A) That the employee was required to take a DOT drug test, but the laboratory reported that the specimen was adulterated or substituted, which is treated as a refusal to test;

(B) The consequences of the appropriate DOT agency regulation for refusing to take the required drug test;

(C) That the referral physician must agree to follow the requirements of paragraphs (g)(3) through (g)(4) of this section; and

(D) That the referral physician must provide you with a signed statement of his or her recommendations.

(3) As the referral physician, you must evaluate the employee and consider any evidence the employee presents concerning the employee's medical explanation. You may conduct additional tests to determine whether there is a legitimate medical explanation. Any additional urine tests must be performed in an HHS-certified laboratory.

(4) As the referral physician, you must then make a written recommendation to the MRO about whether the MRO should determine that there is a legitimate medical explanation. As the MRO, you must seriously consider and assess the referral physician's recommendation in deciding whether there is a legitimate medical explanation.

(5) As the MRO, if you determine that there is a legitimate medical explanation, you must cancel the test and inform ODAPC in writing of the determination and the basis for it (e.g., referral physician's findings, evidence produced by the employee).

(6) As the MRO, if you determine that there is not a legitimate medical explanation, you must report the test to the DER as a verified refusal to test because of adulteration or substitution.

(h) The following are examples of types of evidence an employee could present to support an assertion of a legitimate medical explanation for a substituted result.
(1) Medically valid evidence demonstrating that the employee is capable of physiologically producing urine meeting the creatinine and specific gravity criteria of § 40.93(b).

(i) To be regarded as medically valid, the evidence must have been gathered using appropriate methodology and controls to ensure its accuracy and reliability.

(ii) Assertion by the employee that his or her personal characteristics (e.g., with respect to race, gender, weight, diet, working conditions) are responsible for the substituted result does not, in itself, constitute a legitimate medical explanation. To make a case that there is a legitimate medical explanation, the employee must present evidence showing that the cited personal characteristics actually result in the physiological production of urine meeting the creatinine and specific gravity criteria of § 40.93(b).

(2) Information from a medical evaluation under paragraph (g) of this section that the individual has a medical condition that has been demonstrated to cause the employee to physiologically produce urine meeting the creatinine and specific gravity criteria of § 40.93(b).

(i) A finding or diagnosis by the physician that an employee has a medical condition, in itself, does not constitute a legitimate medical explanation.

(ii) To establish there is a legitimate medical explanation, the employee must demonstrate that the cited medical condition actually results in the physiological production of urine meeting the creatinine and specific gravity criteria of § 40.93(b).

§ 40.147 -- [Reserved]

§ 40.149 -- May the MRO change a verified positive drug test result or refusal to test?

(a) As the MRO, you may change a verified positive or refusal to test drug test result only in the following situations:

(1) When you have reopened a verification that was done without an interview with an employee (see § 40.133(c)).

(2) If you receive information, not available to you at the time of the original verification, demonstrating that the laboratory made an error in identifying (e.g., a paperwork mistake) or testing (e.g., a false positive or negative) the employee's primary or split specimen. For example, suppose the laboratory originally reported a positive test result for Employee X and a negative result for Employee Y. You verified the test results as reported to you. Then the laboratory notifies you that it mixed up the two test results, and X was really negative and Y was really positive. You would change X's test result from positive to negative and contact Y to conduct a verification interview.

(3) If, within 60 days of the original verification decision-

(i) You receive information that could not reasonably have been provided to you at the time of the decision demonstrating that there is a legitimate medical explanation for the presence of drug(s)/metabolite(s) in the employee's specimen; or

(ii) You receive credible new or additional evidence that a legitimate medical explanation for an adulterated or substituted result exists.
Example to Paragraph (a)(3): If the employee's physician provides you a valid prescription that he or she failed to find at the time of the original verification, you may change the test result from positive to negative if you conclude that the prescription provides a legitimate medical explanation for the drug(s)/metabolite(s) in the employee's specimen.

(4) If you receive the information in paragraph (a)(3) of this section after the 60-day period, you must consult with ODAPC prior to changing the result.

(5) When you have made an administrative error and reported an incorrect result.

(b) If you change the result, you must immediately notify the DER in writing, as provided in §§ 40.163-40.165.

(c) You are the only person permitted to change a verified test result.

§ 40.151 -- What are MROs prohibited from doing as part of the verification process?

As an MRO, you are prohibited from doing the following as part of the verification process:

(a) You must not consider any evidence from tests of urine samples or other body fluids or tissues (e.g., blood or hair samples) that are not collected or tested in accordance with this part. For example, if an employee tells you he went to his own physician, provided a urine specimen, sent it to a laboratory, and received a negative test result or a DNA test result questioning the identity of his DOT specimen, you are required to ignore this test result.

(b) In reviewing the CCF, you must not consider evidence extrinsic to the CCF in determining whether the test is valid. For example, you must review only what is on the face of the CCF for this purpose, not assertions by the employee that the CCF does not accurately reflect what happened at the collection site.

(c) It is not your function to determine whether the employer should have directed that a test occur. For example, if an employee tells you that the employer misidentified her as the subject of a random test, or directed her to take a reasonable suspicion or post-accident test without proper grounds under a DOT agency drug or alcohol regulation, you must inform the employee that you cannot play a role in deciding these issues.

(d) It is not your function to consider explanations of confirmed positive, adulterated, or substituted test results that would not, even if true, constitute a legitimate medical explanation. For example, an employee may tell you that someone slipped amphetamines into her drink at a party, that she unknowingly ingested a marijuana brownie, or that she traveled in a closed car with several people smoking crack. MROs are unlikely to be able to verify the facts of such passive or unknowing ingestion stories. Even if true, such stories do not present a legitimate medical explanation. Consequently, you must not declare a test as negative based on an explanation of this kind.

(e) You must not verify a test negative based on information that a physician recommended that the employee use a drug listed in Schedule I of the Controlled Substances Act. (e.g., under a state law that purports to authorize such recommendations, such as the "medical marijuana" laws that some states have adopted).

(f) You must not accept an assertion of consumption or other use of a hemp or other non-prescription marijuana-related product as a basis for verifying a marijuana test negative. You also must not accept such an explanation related to consumption of coca teas as a basis for verifying a cocaine test result as negative. Consuming or using such a product is not a legitimate medical explanation.
(g) You must not accept an assertion that there is a legitimate medical explanation for the presence of PCP or 6-AM in a specimen. There are no legitimate medical explanations for the presence of these substances.

(h) You must not accept, as a legitimate medical explanation for an adulterated specimen, an assertion that soap, bleach, or glutaraldehyde entered a specimen through physiological means. There are no physiological means through which these substances can enter a specimen.

(i) You must not accept, as a legitimate medical explanation for a substituted specimen, an assertion that an employee can produce urine with no detectable creatinine. There are no physiological means through which a person can produce a urine specimen having this characteristic.

§ 40.153 -- How does the MRO notify employees of their right to a test of the split specimen?

(a) As the MRO, when you have verified a drug test as positive for a drug or drug metabolite, or as a refusal to test because of adulteration or substitution, you must notify the employee of his or her right to have the split specimen tested. You must also notify the employee of the procedures for requesting a test of the split specimen.

(b) You must inform the employee that he or she has 72 hours from the time you provide this notification to him or her to request a test of the split specimen.

(c) You must tell the employee how to contact you to make this request. You must provide telephone numbers or other information that will allow the employee to make this request. As the MRO, you must have the ability to receive the employee’s calls at all times during the 72 hour period (e.g., by use of an answering machine with a "time stamp" feature when there is no one in your office to answer the phone).

(d) You must tell the employee that if he or she makes this request within 72 hours, the employer must ensure that the test takes place, and that the employee is not required to pay for the test from his or her own funds before the test takes place. You must also tell the employee that the employer may seek reimbursement for the cost of the test (see § 40.173).

(e) You must tell the employee that additional tests of the specimen e.g., DNA tests) are not authorized.

§ 40.155 -- What does the MRO do when a negative or positive test result is also dilute?

(a) When the laboratory reports that a specimen is dilute, you must, as the MRO, report to the DER that the specimen, in addition to being negative or positive, is dilute.

(b) You must check the "dilute" box (Step 6) on Copy 2 of the CCF.

(c) You may only report a dilute test result when you are in possession of a legible copy of Copy 1 of the CCF. In addition, you must have Copy 2 of the CCF, a legible copy of it, or any other copy of the CCF containing the employee's signature.

(d) When you report a dilute specimen to the DER, you must explain to the DER the employer's obligations and choices under § 40.197.

§ 40.157 -- [Reserved]

§ 40.159 -- What does the MRO do when a drug test result is invalid?
(a) As the MRO, when the laboratory reports that the test result is an invalid result, you must do the following:
   (1) Discuss the laboratory results with a certifying scientist to obtain more specific information.
   (2) Contact the employee and inform the employee that the specimen was invalid or contained an unexplained interfering substance. In contacting the employee, use the procedures set forth in § 40.131.
   (3) After explaining the limits of disclosure (see §§ 40.135(d) and 40.327), you should inquire as to medications the employee may have taken that may interfere with some immunoassay tests.
   (4) If the employee gives an explanation that is acceptable, you must:
      (i) Place a check mark in the "Test Cancelled" box (Step 6) on Copy 2 of the CCF and enter "Invalid Result" and "direct observation collection not required" on the "Remarks" line.
      (ii) Report to the DER that the test is cancelled, the reason for cancellation, and that no further action is required unless a negative test result is required (i.e., pre-employment, return-to-duty, or follow-up tests).
   (5) If the employee is unable to provide an explanation and/or a valid prescription for a medication that interfered with the immunoassay test but denies having adulterated the specimen, you must:
      (i) Place a check mark in the "Test Cancelled" box (Step 6) on Copy 2 of the CCF and enter "Invalid Result" and "direct observation collection required" on the "Remarks" line.
      (ii) Report to the DER that the test is cancelled, the reason for cancellation, and that a second collection must take place immediately under direct observation.
      (iii) Instruct the employer to ensure that the employee has the minimum possible advance notice that he or she must go to the collection site.
(b) You may only report an invalid test result when you are in possession of a legible copy of Copy 1 of the CCF. In addition, you must have Copy 2 of the CCF, a legible copy of it, or any other copy of the CCF containing the employee's signature.
(c) If the employee admits to having adulterated or substituted the specimen, you must, on the same day, write and sign your own statement of what the employee told you. You must then report a refusal to test in accordance with § 40.163.

§ 40.161 -- What does the MRO do when a drug test specimen is rejected for testing?
As the MRO, when the laboratory reports that the specimen is rejected for testing (e.g., because of a fatal or uncorrected flaw), you must do the following:
(a) Place a check mark in the "Test Cancelled" box (Step 6) on Copy 2 of the CCF and enter the reason on the "Remarks" line.
(b) Report to the DER that the test is cancelled and the reason for cancellation, and that no further action is required unless a negative test is required (e.g., in the case of a pre-employment, return-to-duty, or follow-up test).
(c) You may only report a test cancelled because of a rejected for testing test result when you are in possession of a legible copy of Copy 1 of the CCF. In addition, you must have Copy 2 of the CCF, a legible copy of it, or any other copy of the CCF containing the employee's signature.
§ 40.163 -- How does the MRO report drug test results?
(a) As the MRO, it is your responsibility to report the drug test results to the employer in writing.
   (1) You or a staff member may rubber stamp a report of negative results. If you use a rubber stamp, you or your staff must also initial the stamp to identify who affixed the stamp to the report.
   (2) You, as the MRO, must sign reports of all other results
(b) You may use a signed or stamped and dated legible photocopy of Copy 2 of the CCF to report test results.
(c) If you do not report test results using Copy 2 of the CCF for this purpose, you must provide a written report (e.g., a letter) for each test result. This report must, as a minimum, include the following information:
   (1) Full name, as indicated on the CCF, of the employee tested;
   (2) Specimen ID number from the CCF and the donor SSN or employee ID number;
   (3) Reason for the test as indicated on the CCF (e.g., random, post-accident);
   (4) Date of the collection;
   (5) Result of the test (i.e., positive, negative, dilute, refusal to test, test cancelled) and the date the result was verified by the MRO;
   (6) For verified positive tests, the drug(s)/metabolite(s) for which the test was positive;
   (7) For cancelled tests, the reason for cancellation; and
   (8) For refusals to test, the reason for the refusal determination (e.g., in the case of an adulterated test result, the name of the adulterant).
(d) You must retain a signed or stamped and dated copy of Copy 2 of the CCF in your records. If you do not use Copy 2 for reporting results, you must maintain a copy of the signed or stamped and dated letter in addition to the signed or stamped and dated Copy 2.
(e) You must not use Copy 1 of the CCF to report drug test results.
(f) You must not provide quantitative values to the DER or C/TPA for drug or validity test results. However, you must provide the test information in your possession to a SAP who consults with you (see § 40.293(g)).

§ 40.165 -- To whom does the MRO transmit reports of drug test results?
(a) As the MRO, you must report all drug test results to the DER, except in the circumstances provided for in § 40.345.
(b) If the employer elects to receive reports of results through a C/TPA, acting as an intermediary as provided in § 40.345, you must report the results through the designated C/TPA.

§ 40.167 -- How are MRO reports of drug results transmitted to the employer?
As the MRO or C/TPA who transmits drug test results to the employer, you must comply with the following requirements:
(a) You must report the results in a confidential manner.
(b) You must transmit to the DER on the same day the MRO verifies the result or the next business day all verified positive test results, results requiring an immediate
collection under direct observation, adulterated or substituted specimen results, and other refusals to test.

(1) Direct telephone contact with the DER is the preferred method of immediate reporting. Follow up your phone call with appropriate documentation (see § 40.163).

(2) You are responsible for identifying yourself to the DER, and the DER must have a means to confirm your identification.

(3) The MRO's report that you transmit to the employer must contain all of the information required by § 40.163.

(c) You must transmit the MRO's written report of verified test to the DER so that the DER receives them within two days of verification by the MRO.

(d) In transmitting test results, you or the C/TPA and the employer must ensure the security of the transmission and limit access to any transmission, storage, or retrieval systems.

§ 40.169 -- Where is other information concerning the role of MROs and the verification process found in this regulation?

You can find more information concerning the role of MROs in several sections of this part:

§ 40.3-Definition; §§ 40.47-40.49-Correction of form and kit errors; § 40.67-Role in direct observation and other atypical test situations; § 40.83-Laboratory handling of fatal and correctable flaws; § 40.97-Laboratory handling of test results and quantitative values; § 40.99-Authorization of longer laboratory retention of specimens; § 40.101-Relationship with laboratories; avoidance of conflicts of interest; § 40.105-Notification of discrepancies in blind specimen results; § 40.171-Request for test of split specimen; § 40.187-Action concerning split specimen test results; § 40.193-Role in "shy bladder" situations; § 40.195-Role in cancelling tests; §§ 40.199-40.203-Documenting errors in tests; § 40.327-Confidentiality and release of information; § 40.347-Transfer of records; § 40.353-Relationships with service agents.

Subpart H--Split Specimen Tests

§ 40.171 -- How does an employee request a test of a split specimen?

(a) As an employee, when the MRO has notified you that you have a verified positive drug test or refusal to test because of adulteration or substitution, you have 72 hours from the time of notification to request a test of the split specimen. The request may be verbal or in writing. If you make this request to the MRO within 72 hours, you trigger the requirements of this section for a test of the split specimen.

(b) (1) If, as an employee, you have not requested a test of the split specimen within 72 hours, you may present to the MRO information documenting that serious injury, illness, lack of actual notice of the verified test result, inability to contact the MRO (e.g., there was no one in the MRO's office and the answering machine was not working), or other circumstances unavoidably prevented you from making a timely request.

(2) As the MRO, if you conclude from the employee's information that there was a legitimate reason for the employee's failure to contact you within 72 hours, you must direct that the test of the split specimen take place, just as you would when there is a timely request.
(c) When the employee makes a timely request for a test of the split specimen under paragraphs (a) and (b) of this section, you must, as the MRO, immediately provide written notice to the laboratory that tested the primary specimen, directing the laboratory to forward the split specimen to a second HHS-certified laboratory. You must also document the date and time of the employee's request.

§ 40.173 -- Who is responsible for paying for the test of a split specimen?
(a) As the employer, you are responsible for making sure (e.g., by establishing appropriate accounts with laboratories for testing split specimens) that the MRO, first laboratory, and second laboratory perform the functions noted in §§ 40.175-40.185 in a timely manner, once the employee has made a timely request for a test of the split specimen.
(b) As the employer, you must not condition your compliance with these requirements on the employee's direct payment to the MRO or laboratory or the employee's agreement to reimburse you for the costs of testing. For example, if you ask the employee to pay for some or all of the cost of testing the split specimen, and the employee is unwilling or unable to do so, you must ensure that the test takes place in a timely manner, even though this means that you pay for it.
(c) As the employer, you may seek payment or reimbursement of all or part of the cost of the split specimen from the employee (e.g., through your written company policy or a collective bargaining agreement). This part takes no position on who ultimately pays the cost of the test, so long as the employer ensures that the testing is conducted as required and the results released appropriately.

§ 40.175 -- What steps does the first laboratory take with a split specimen?
(a) As the laboratory at which the primary and split specimen first arrive, you must check to see whether the split specimen is available for testing.
(b) If the split specimen is unavailable or appears insufficient, you must then do the following:
   (1) Continue the testing process for the primary specimen as you would normally. Report the results for the primary specimen without providing the MRO information regarding the unavailable split specimen.
   (2) Upon receiving a letter from the MRO instructing you to forward the split specimen to another laboratory for testing, report to the MRO that the split specimen is unavailable for testing. Provide as much information as you can about the cause of the unavailability.
(c) As the laboratory that tested the primary specimen, you are not authorized to open the split specimen under any circumstances (except when the split specimen is redesignated as provided in § 40.83).
(d) When you receive written notice from the MRO instructing you to send the split specimen to another HHS-certified laboratory, you must forward the following items to the second laboratory:
   (1) The split specimen in its original specimen bottle, with the seal intact;
   (2) A copy of the MRO's written request; and
   (3) A copy of Copy 1 of the CCF, which identifies the drug(s)/metabolite(s) or the validity criteria to be tested for.
(e) You must not send to the second laboratory any information about the identity of the employee. Inadvertent disclosure does not, however, cause a fatal flaw.
This subpart does not prescribe who gets to decide which HHS-certified laboratory is used to test the split specimen. That decision is left to the parties involved.

§ 40.177 -- What does the second laboratory do with the split specimen when it is tested to reconfirm the presence of a drug or drug metabolite?
  (a) As the laboratory testing the split specimen, you must test the split specimen for the drug(s)/drug metabolite(s) detected in the primary specimen.
  (b) You must conduct this test without regard to the cutoff concentrations of § 40.87.
  (c) If the test fails to reconfirm the presence of the drug(s)/drug metabolite(s) that were reported positive in the primary specimen, you must conduct validity tests in an attempt to determine the reason for being unable to reconfirm the presence of the drug(s)/metabolite(s). You should conduct the same validity tests as you would conduct on a primary specimen set forth in § 40.91.
  (d) In addition, if the test fails to reconfirm the presence of the drugs/drugs metabolites or validity criteria that were reported in the primary specimen, you may transmit the specimen or an aliquot of it to another HHS-certified laboratory that will conduct another reconfirmation test.

§ 40.179 -- What does the second laboratory do with the split specimen when it is tested to reconfirm an adulterated test result?
  As the laboratory testing the split specimen, you must test the split specimen for the adulterant detected in the primary specimen, using the criteria of § 40.95 just as you would do for a primary specimen. The result of the primary specimen is reconfirmed if the split specimen meets these criteria.

§ 40.181 -- What does the second laboratory do with the split specimen when it is tested to reconfirm a substituted test result?
  As the laboratory testing the split specimen, you must test the split specimen using the criteria of § 40.93(b), just as you would do for a primary specimen. The result of the primary specimen is reconfirmed if the split specimen meets these criteria.

§ 40.183 -- What information do laboratories report to MROs regarding split specimen results?
  (a) As the laboratory responsible for testing the split specimen, you must report split specimen test results by checking the "Reconfirmed" box or the "Failed to Reconfirm" box (Step 5(b)) on Copy 1 of the CCF.
  (b) If you check the "Failed to Reconfirm" box, one of the following statements must be included (as appropriate) on the "Reason" line (Step 5(b)):
     (1) "Drug(s)/Drug Metabolite(s) Not Detected."
     (2) "Adulterant not found within criteria."
     (3) "Specimen not consistent with substitution criteria [specify creatinine, specific gravity, or both]"
     (4) "Specimen not available for testing."
  (c) As the laboratory certifying scientist, enter your name, sign, and date the CCF.

§ 40.185 -- Through what methods and to whom must a laboratory report split specimen results?
(a) As the laboratory testing the split specimen, you must report laboratory results directly, and only, to the MRO at his or her place of business. You must not report results to or through the DER or another service agent (e.g., a C/TPA).
(b) You must fax, courier, mail, or electronically transmit a legible image or copy of the fully-completed Copy 1 of the CCF, which has been signed by the certifying scientist.
(c) You must transmit the laboratory result to the MRO immediately, preferably on the same day or next business day as the result is signed and released.

§ 40.187 -- What does the MRO do with split specimen laboratory results?

As an MRO, you must take the following actions when a laboratory reports the following results of split specimen tests:
(a) **Reconfirmed.**
   (1) In the case of a reconfirmed positive test for a drug or drug metabolite, report the reconfirmation to the DER and the employee.
   (2) In the case of a reconfirmed adulterated or substituted result, report to the DER and the employee that the specimen was adulterated or substituted, either of which constitutes a refusal to test. Therefore, "refusal to test" is the final result.
(b) **Failed to Reconfirm: Drug(s)/Drug Metabolite(s) Not Detected.**
   (1) Report to the DER and the employee that both tests must be cancelled.
   (2) Using the format in Appendix D to this part, inform ODAPC of the failure to reconfirm.
(c) **Failed to Reconfirm: Adulteration or Substitution (as appropriate) Criteria Not Met.**
   (1) Report to the DER and the employee that both tests must be cancelled.
   (2) Using the format in Appendix D to this part, inform ODAPC of the failure to reconfirm.
(d) **Failed to Reconfirm: Specimen not Available for Testing.**
   (1) Report to the DER and the employee that both tests must be cancelled and the reason for cancellation.
   (2) Direct the DER to ensure the immediate collection of another specimen from the employee under direct observation, with no notice given to the employee of this collection requirement until immediately before the collection.
   (3) Using the format in Appendix D to this part, notify ODAPC of the failure to reconfirm.
(e) Enter your name, sign and date (Step 7) of Copy 2 of the CCF.
(f) Send a legible copy of Copy 2 of the CCF (or a signed and dated letter, see § 40.163) to the employer and keep a copy for your records. Transmit the document as provided in § 40.167.

§ 40.189 -- Where is other information concerning split specimens found in this regulation?

You can find more information concerning split specimens in several sections of this part:
§ 40.3-Definition; § 40.65-Quantity of split specimen; § 40.67-Directly observed test when split specimen is unavailable; §§ 40.71-40.73-Collection process for split specimens; § 40.83-Laboratory accessioning of split specimens; § 40.99-Laboratory retention of split specimens; § 40.103-Blind split specimens; § 40.153-MRO notice to employees on tests of split specimen; §§ 40.193 and 40.201-MRO actions on insufficient or unavailable split specimens.

Appendix D to Part 40-Report format for split specimen failure to reconfirm.
Subpart I--Problems in Drug Tests

§ 40.191 -- What is a refusal to take a DOT drug test, and what are the consequences?

(a) As an employee, you have refused to take a drug test if you:

(1) Fail to appear for any test within a reasonable time, as determined by the employer, after being directed to do so by the employer. This includes the failure of an employee (including an owner-operator) to appear for a test when called by C/TPA (see § 40.61(a));

(2) Fail to remain at the testing site until the testing process is complete;

(3) Fail to provide a urine specimen for any drug test required by this part or DOT agency regulations;

(4) In the case of a directly observed or monitored collection in a drug test, fail to permit the observation or monitoring of your provision of a specimen (see §§ 40.67(l) and 40.69(g));

(5) Fail to provide a sufficient amount of urine when directed, and it has been determined, through a required medical evaluation, that there was no adequate medical explanation for the failure (see § 40.193(d)(2));

(6) Fail or decline to take a second test the employer or collector has directed you to take;

(7) Fail to undergo a medical examination or evaluation, as directed by the MRO as part of the verification process, or as directed by the DER as part of the "shy bladder" procedures of this part (see § 40.193(d)); or

(8) Fail to cooperate with any part of the testing process (e.g., refuse to empty pockets when so directed by the collector, behave in a confrontational way that disrupts the collection process).

(b) As an employee, if the MRO reports that you have a verified adulterated or substituted test result, you have refused to take a drug test.

(c) As an employee, if you refuse to take a drug test, you incur the consequences specified under DOT agency regulations for a violation of those DOT agency regulations.

(d) As a collector or an MRO, when an employee refuses to participate in the part of the testing process in which you are involved, you must terminate the portion of the testing process in which you are involved, document the refusal on the CCF (or in a separate document which you cause to be attached to the form), immediately notify the DER by any means (e.g., telephone or secure fax machine) that ensures that the refusal notification is immediately received. As a referral physician (e.g., physician evaluating a "shy bladder" condition or a claim of a legitimate medical explanation in a validity testing situation), you must notify the MRO, who in turn will notify the DER.

(1) As the collector, you must note the refusal in the "Remarks" line (Step 2), and sign and date the CCF.

(2) As the MRO, you must note the refusal by checking the "refused to test because" box (Step 6) on Copy 2 of the CCF, and add the reason on the "Remarks" line. You must then sign and date the CCF.

(e) As an employee, when you refuse to take a non-DOT test or to sign a non-DOT form, you have not refused to take a DOT test. There are no consequences under DOT agency regulations for refusing to take a non-DOT test.
§ 40.193 -- What happens when an employee does not provide a sufficient amount of urine for a drug test?

(a) This section prescribes procedures for situations in which an employee does not provide a sufficient amount of urine to permit a drug test (i.e., 45 mL of urine).

(b) As the collector, you must do the following:

1. Discard the insufficient specimen, except where the insufficient specimen was out of temperature range or showed evidence of adulteration or tampering (see § 40.65(b) and (c)).

2. Urge the employee to drink up to 40 ounces of fluid, distributed reasonably through a period of up to three hours, or until the individual has provided a sufficient urine specimen, whichever occurs first. It is not a refusal to test if the employee declines to drink.

3. If the employee refuses to make the attempt to provide a new urine specimen, you must discontinue the collection, note the fact on the "Remarks" line of the CCF (Step 2), and immediately notify the DER. This is a refusal to test.

4. If the employee has not provided a sufficient specimen within three hours of the first unsuccessful attempt to provide the specimen, you must discontinue the collection, note the fact on the "Remarks" line of the CCF (Step 2), and immediately notify the DER.

5. Send Copy 2 of the CCF to the MRO and Copy 4 to the DER. You must send or fax these copies to the MRO and DER within 24 hours or the next business day.

(c) As the DER, when the collector informs you that the employee has not provided a sufficient amount of urine (see paragraph (b)(4) of this section), you must, after consulting with the MRO, direct the employee to obtain, within five working days, an evaluation from a licensed physician, acceptable to the MRO, who has expertise in the medical issues raised by the employee's failure to provide a sufficient specimen. (The MRO may perform this evaluation if the MRO has appropriate expertise.)

1. As the MRO, if another physician will perform the evaluation, you must provide the other physician with the following information and instructions:

   i. That the employee was required to take a DOT drug test, but was unable to provide a sufficient amount of urine to complete the test;

   ii. The consequences of the appropriate DOT agency regulation for refusing to take the required drug test;

   iii. That the referral physician must agree to follow the requirements of paragraphs (d) through (g) of this section.

(d) As the referral physician conducting this evaluation, you must recommend that the MRO make one of the following determinations:

1. A medical condition has, or with a high degree of probability could have, precluded the employee from providing a sufficient amount of urine. As the MRO, if you accept this recommendation, you must:

   i. Check "Test Cancelled" (Step 6) on the CCF; and

   ii. Sign and date the CCF.

2. There is not an adequate basis for determining that a medical condition has, or with a high degree of probability could have, precluded the employee from providing a sufficient amount of urine. As the MRO, if you accept this recommendation, you must:

   i. Check "Refusal to test because" (Step 6) on the CCF and enter reason in the remarks line; and
(ii) Sign and date the CCF.

(e) For purposes of this paragraph, a medical condition includes an ascertainable physiological condition (e.g., a urinary system dysfunction) or a medically documented pre-existing psychological disorder, but does not include unsupported assertions of "situational anxiety" or dehydration.

(f) As the referral physician making the evaluation, after completing your evaluation, you must provide a written statement of your recommendations and the basis for them to the MRO. You must not include in this statement detailed information on the employee's medical condition beyond what is necessary to explain your conclusion.

(g) If, as the referral physician making this evaluation in the case of a pre-employment test, you determine that the employee's medical condition is a serious and permanent or long-term disability that is highly likely to prevent the employee from providing a sufficient amount of urine for a very long or indefinite period of time, you must set forth your determination and the reasons for it in your written statement to the MRO. As the MRO, upon receiving such a report, you must follow the requirements of § 40.195, where applicable.

(h) As the MRO, you must seriously consider and assess the referral physician's recommendations in making your determination about whether the employee has a medical condition that has, or with a high degree of probability could have, precluded the employee from providing a sufficient amount of urine. You must report your determination to the DER in writing as soon as you make it.

(i) As the employer, when you receive a report from the MRO indicating that a test is cancelled as provided in paragraph (d)(1) of this section, you take no further action with respect to the employee. The employee remains in the random testing pool.

§ 40.195 -- What happens when an individual is unable to provide a sufficient amount of urine for a pre-employment or return-to-duty test because of a permanent or long-term medical condition?

(a) This section concerns a situation in which an employee has a medical condition that precludes him or her from providing a sufficient specimen for a pre-employment or return-to-duty test and the condition involves a permanent or long-term disability. As the MRO in this situation, you must do the following:

(1) You must determine if there is clinical evidence that the individual is an illicit drug user. You must make this determination by personally conducting, or causing to be conducted, a medical evaluation and through consultation with the employee's physician and/or the physician who conducted the evaluation under § 40.193(d).

(2) If you do not personally conduct the medical evaluation, you must ensure that one is conducted by a licensed physician acceptable to you.

(3) For purposes of this section, the MRO or the physician conducting the evaluation may conduct an alternative test (e.g., blood) as part of the medically appropriate procedures in determining clinical evidence of drug use.

(b) If the medical evaluation reveals no clinical evidence of drug use, as the MRO, you must report the result to the employer as a negative test with written notations regarding results of both the evaluation conducted under § 40.193(d) and any further medical examination. This report must state the basis for the determination that a permanent or long-term medical condition exists, making provision of a sufficient urine specimen impossible, and for the determination that no signs and symptoms of drug use exist.
(1) Check "Negative" (Step 6) on the CCF.
(2) Sign and date the CCF.

(c) If the medical evaluation reveals clinical evidence of drug use, as the MRO, you must report the result to the employer as a cancelled test with written notations regarding results of both the evaluation conducted under § 40.193(d) and any further medical examination. This report must state that a permanent or long-term medical condition exists, making provision of a sufficient urine specimen impossible, and state the reason for the determination that signs and symptoms of drug use exist. Because this is a cancelled test, it does not serve the purposes of a negative test (i.e., the employer is not authorized to allow the employee to begin or resume performing safety-sensitive functions, because a negative test is needed for that purpose).

(d) For purposes of this section, permanent or long-term medical conditions are those physiological, anatomic, or psychological abnormalities documented as being present prior to the attempted collection, and considered not amenable to correction or cure for an extended period of time, if ever.

   (1) Examples would include destruction (any cause) of the glomerular filtration system leading to renal failure; unrepaired traumatic disruption of the urinary tract; or a severe psychiatric disorder focused on genito-urinary matters.

   (2) Acute or temporary medical conditions, such as cystitis, urethritis or prostatitis, though they might interfere with collection for a limited period of time, cannot receive the same exceptional consideration as the permanent or long-term conditions discussed in paragraph (d)(1) of this section.

§ 40.197 -- What happens when an employer receives a report of a dilute specimen?

(a) As the employer, if the MRO informs you that a positive drug test was dilute, you simply treat the test as a verified positive test. You must not direct the employee to take another test based on the fact that the specimen was dilute.

(b) If the MRO informs you that a negative drug test was dilute, you may, but are not required to, direct the employee to take another test immediately. Such recollections must not be collected under direct observation, unless there is another basis for use of direct observation (see § 40.67(b) and (c)).

(c) You must treat all employees the same for this purpose. For example, you must not retest some employees and not others. You may, however, establish different policies for different types of tests (e.g., conduct retests in pre-employment test situations, but not in random test situations). You must inform your employees in advance of your decisions on these matters.

(d) If you direct the employee to take another test, you must ensure that the employee is given the minimum possible advance notice that he or she must go to the collection site.

(e) If you direct the employee to take another test, the result of the second test—not that of the original test—becomes the test of record, on which you rely for purposes of this part.

(f) If you require employees to take another test, and the second test is also negative and dilute, you are not permitted to make the employee take a third test because the second test was dilute.

(g) If you direct the employee to take another test and the employee declines to do so, the employee has refused the test for purpose of this part and DOT agency regulations.
§ 40.199 -- What problems always cause a drug test to be cancelled?
(a) As the MRO, when the laboratory discovers a "fatal flaw" during its processing of incoming specimens (see § 40.83), the laboratory will report to you that the specimen has been "Rejected for Testing" (with the reason stated). You must always cancel such a test.
(b) The following are "fatal flaws":
   (1) There is no printed collector's name and no collector's signature;
   (2) The specimen ID numbers on the specimen bottle and the CCF do not match;
   (3) The specimen bottle seal is broken or shows evidence of tampering (and a split specimen cannot be redesignated, see § 40.83(g)); and
   (4) Because of leakage or other causes, there is an insufficient amount of urine in the primary specimen bottle for analysis and the specimens cannot be redesignated (see § 40.83(g)).
(c) You must report the result as provided in § 40.161.

§ 40.201 -- What problems always cause a drug test to be cancelled and may result in a requirement for another collection?
As the MRO, you must cancel a drug test when a laboratory reports that any of the following problems have occurred. You must inform the DER that the test was cancelled. You must also direct the DER to ensure that an additional collection occurs immediately, if required by the applicable procedures specified in paragraphs (a) through (e) of this section.
(a) The laboratory reports an "Invalid Result." You must follow applicable procedures in § 40.159 (recollection under direct observation may be required).
(b) The laboratory reports the result as "Rejected for Testing." You must follow applicable procedures in § 40.161 (a recollection may be required).
(c) The laboratory's test of the primary specimen is positive and the split specimen is reported by the laboratory as "Failure to Reconfirm: Drug(s)/Drug Metabolite(s) Not Detected." You must follow applicable procedures in § 40.187(b) (no recollection is required in this case).
(d) The laboratory's test result for the primary specimen is adulterated or substituted and the split specimen is reported by the laboratory as "Adulterant not found within criteria," or "specimen not consistent with substitution criteria, as applicable. You must follow applicable procedures in § 40.187(c) (no recollection is required in this case).
(e) The laboratory's test of the primary specimen is positive, adulterated, or substituted and the split specimen is unavailable for testing. You must follow applicable procedures in § 40.187(d) (recollection under direct observation is required in this case).
(f) The examining physician has determined that there is an acceptable medical explanation of the employee's failure to provide a sufficient amount of urine. You must follow applicable procedures in § 40.193(d)(1) (no recollection is required in this case).

§ 40.203 -- What problems cause a drug test to be cancelled unless they are corrected?
(a) As the MRO, when a laboratory discovers a "correctable flaw" during its processing of incoming specimens (see § 40.83), the laboratory will attempt to correct it. If the laboratory is unsuccessful in this attempt, it will report to you that the specimen has been "Rejected for Testing" (with the reason stated).
(b) The following are "correctable flaws" that laboratories must attempt to correct:
   (1) The collector's signature is omitted on the certification statement on the CCF.
(2) The specimen temperature was not checked and the "Remarks" line did not contain an entry regarding the temperature being out of range.
(c) As the MRO, when you discover a "correctable flaw" during your review of the CCF, you must cancel the test unless the flaw is corrected.
(d) The following are correctable flaws that you must attempt to correct:
   (1) The employee's signature is omitted from the certification statement, unless the employee's failure or refusal to sign is noted on the "Remarks" line of the CCF.
   (2) The certifying scientist's signature is omitted on the laboratory copy of the CCF for a positive, adulterated, substituted, or invalid test result.
   (3) The collector uses a non-DOT form for the test, provided that the collection and testing process is conducted in accordance with DOT procedures in an HHS-certified laboratory following DOT initial and confirmation test criteria.

§ 40.205 -- How are drug test problems corrected?
(a) As a collector, you have the responsibility of trying to successfully complete a collection procedure for each employee.
   (1) If, during or shortly after the collection process, you become aware of any event that prevents the completion of a valid test or collection (e.g., a procedural or paperwork error), you must try to correct the problem promptly, if doing so is practicable. You may conduct another collection as part of this effort.
   (2) If another collection is necessary, you must begin the new collection procedure as soon as possible, using a new CCF and a new collection kit.
(b) If, as a collector, laboratory, MRO, employer, or other person implementing these drug testing regulations, you become aware of a problem that can be corrected (see § 40.203), but which has not already been corrected under paragraph (a) of this section, you must take all practicable action to correct the problem so that the test is not cancelled.
   (1) If the problem resulted from the omission of required information, you must, as the person responsible for providing that information, supply in writing the missing information and a statement that it is true and accurate. For example, suppose you are a collector, and you forgot to make a notation on the "Remarks" line of the CCF that the employee did not sign the certification. You would, when the problem is called to your attention, supply a signed statement that the employee failed or refused to sign the certification and that your statement is true and accurate. You must supply this information on the same business day on which you are notified of the problem, transmitting it by fax or courier.
   (2) If the problem is the use of a non-Federal form, you must, as the person responsible for the use of the incorrect form, provide a signed statement that the incorrect form contains all the information needed for a valid DOT drug test, that the incorrect form was used inadvertently or as the only means of conducting a test, in circumstances beyond your control. The statement must also list the steps you have taken to prevent future use of non-Federal forms for DOT tests. For this flaw to have been corrected, the test of the specimen must have occurred at a HHS-certified laboratory where it was tested using the testing protocol in this part. You must supply this information on the same business day on which you are notified of the problem, transmitting it by fax or courier.
   (3) You must maintain the written documentation of a correction with the CCF.
   (4) You must mark the CCF in such a way (e.g., stamp noting correction) as to make it obvious on the face of the CCF that you corrected the flaw.
§ 40.207 -- What is the effect of a cancelled drug test?
(a) A cancelled drug test is neither positive nor negative.
(1) As an employer, you must not attach to a cancelled test the consequences of a positive test or other violation of a DOT drug testing regulation (e.g., removal from a safety-sensitive position).
(2) As an employer, you must not use a cancelled test for the purposes of a negative test to authorize the employee to perform safety-sensitive functions (i.e., in the case of a pre-employment, return-to-duty, or follow-up test).
(3) However, as an employer, you must not direct a recollection for an employee because a test has been cancelled, except in the situations cited in paragraph (a)(2) of this section or other provisions of this part that require another test to be conducted (e.g., §§ 40.159(a)(5) and 40.187(b)).
(b) A cancelled test does not count toward compliance with DOT requirements (e.g., being applied toward the number of tests needed to meet the employer's minimum random testing rate).
(c) A cancelled DOT test does not provide a valid basis for an employer to conduct a non-DOT test (i.e., a test under company authority).

§ 40.209 -- What is the effect of procedural problems that are not sufficient to cancel a drug test?
(a) As a collector, laboratory, MRO, employer or other person administering the drug testing process, you must document any errors in the testing process of which you become aware, even if they are not considered problems that will cause a test to be cancelled as listed in this subpart. Decisions about the ultimate impact of these errors will be determined by other administrative or legal proceedings, subject to the limitations of paragraph (b) of this section.
(b) No person concerned with the testing process may declare a test cancelled based on an error that does not have a significant adverse effect on the right of the employee to have a fair and accurate test. Matters that do not result in the cancellation of a test include, but are not limited to, the following:
   (1) A minor administrative mistake (e.g., the omission of the employee's middle initial, a transposition of numbers in the employee's social security number);
   (2) An error that does not affect employee protections under this part (e.g., the collector's failure to add bluing agent to the toilet bowl, which adversely affects only the ability of the collector to detect tampering with the specimen by the employee);
   (3) The collection of a specimen by a collector who is required to have been trained (see § 40.33), but who has not met this requirement;
   (4) A delay in the collection process (see § 40.61(a));
   (5) Verification of a test result by an MRO who has the basic credentials to be qualified as an MRO (see § 40.121(a) through (b)) but who has not met training and/or documentation requirements (see § 40.121(c) through (e));
   (6) The failure to directly observe or monitor a collection that the rule requires or permits to be directly observed or monitored, or the unauthorized use of direct observation or monitoring for a collection;
   (7) The fact that a test was conducted in a facility that does not meet the requirements of § 40.41;
   (8) If the specific name of the courier on the CCF is omitted or erroneous;
(9) Personal identifying information is inadvertently contained on the CCF (e.g., the employee signs his or her name on the laboratory copy); or
(10) Claims that the employee was improperly selected for testing.
(c) As an employer, these types of errors, even though not sufficient to cancel a drug test result, may subject you to enforcement action under DOT agency regulations.

Subpart J--Alcohol Testing Personnel

§ 40.211 -- Who conducts DOT alcohol tests?
(a) Screening test technicians (STTs) and breath alcohol technicians (BATs) meeting their respective requirements of this subpart are the only people authorized to conduct DOT alcohol tests.
(b) An STT can conduct only alcohol screening tests, but a BAT can conduct alcohol screening and confirmation tests.
(c) As a BAT- or STT-qualified immediate supervisor of a particular employee, you may not act as the STT or BAT when that employee is tested, unless no other STT or BAT is available and DOT agency regulations do not prohibit you from doing so.

§ 40.213 -- What training requirements must STTs and BATs meet?
To be permitted to act as a BAT or STT in the DOT alcohol testing program, you must meet each of the requirements of this section:
(a) Basic information. You must be knowledgeable about the alcohol testing procedures in this part and the current DOT guidance. These documents and information are available from ODAPC (Department of Transportation, 400 7th Street, SW., Room 10403, Washington DC, 20590, 202-366-3784, or on the ODAPC web site, http://www.dot.gov/ost/dapc).
(b) Qualification training. You must receive qualification training meeting the requirements of this paragraph (b).
   (1) Qualification training must be in accordance with the DOT Model BAT or STT Course, as applicable. The DOT Model Courses are available from ODAPC (Department of Transportation, 400 7th Street, SW., Room 10403, Washington DC, 20590, 202-366-3784, or on the ODAPC web site, http://www.dot.gov/ost/dapc). The training can also be provided using a course of instruction equivalent to the DOT Model Courses. On request, ODAPC will review BAT and STT instruction courses for equivalency.
   (2) Qualification training must include training to proficiency in using the alcohol testing procedures of this part and in the operation of the particular alcohol testing device(s) (i.e., the ASD(s) or EBT(s)) you will be using.
   (3) The training must emphasize that you are responsible for maintaining the integrity of the testing process, ensuring the privacy of employees being tested, and avoiding conduct or statements that could be viewed as offensive or inappropriate.
   (4) The instructor must be an individual who has demonstrated necessary knowledge, skills, and abilities by regularly conducting DOT alcohol tests as an STT or BAT, as applicable, for a period of at least a year, who has conducted STT or BAT training, as applicable, under this part for a year, or who has successfully completed a "train the trainer" course.

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(c) **Initial Proficiency Demonstration.** Following your completion of qualification training under paragraph (b) of this section, you must demonstrate proficiency in alcohol testing under this part by completing three consecutive error-free mock tests.

(1) Another person must monitor and evaluate your performance, in person or by a means that provides real-time observation and interaction between the instructor and trainee, and attest in writing that the mock collections are "error-free." This person must be an individual who meets the requirements of paragraph (b)(4) of this section.

(2) These tests must use the alcohol testing devices (e.g., EBT(s) or ASD(s)) that you will use as a BAT or STT.

(3) If you are an STT who will be using an ASD that indicates readings by changes, contrasts, or other readings in color, you must demonstrate as part of the mock test that you are able to discern changes, contrasts, or readings correctly.

(d) **Schedule for qualification training and initial proficiency demonstration.** The following is the schedule for qualification training and the initial proficiency demonstration you must meet:

(1) If you became a BAT or STT before August 1, 2001, you were required to have met the requirements set forth in paragraphs (b) and (c) of this section, and you do not have to meet them again.

(2) If you become a BAT or STT on or after August 1, 2001, you must meet the requirements of paragraphs (b) and (c) of this section before you begin to perform BAT or STT functions.

(e) **Refresher training.** No less frequently than every five years from the date on which you satisfactorily complete the requirements of paragraphs (b) and (c) of this section, you must complete refresher training that meets all the requirements of paragraphs (b) and (c) of this section.

(f) **Error Correction Training.** If you make a mistake in the alcohol testing process that causes a test to be cancelled (i.e., a fatal or uncorrected flaw), you must undergo error correction training. This training must occur within 30 days of the date you are notified of the error that led to the need for retraining.

(1) Error correction training must be provided and your proficiency documented in writing by a person who meets the requirements of paragraph (b)(4) of this section.

(2) Error correction training is required to cover only the subject matter area(s) in which the error that caused the test to be cancelled occurred.

(3) As part of the error correction training, you must demonstrate your proficiency in the alcohol testing procedures of this part by completing three consecutive error-free mock tests. The mock tests must include one uneventful scenario and two scenarios related to the area(s) in which your error(s) occurred. The person providing the training must monitor and evaluate your performance and attest in writing that the mock tests were error-free.

(g) **Documentation.** You must maintain documentation showing that you currently meet all requirements of this section. You must provide this documentation on request to DOT agency representatives and to employers and C/TPAs who are negotiating to use your services.

(h) **Other persons who may serve as BATs or STTs.** (1) Anyone meeting the requirements of this section to be a BAT may act as an STT, provided that the individual has demonstrated initial proficiency in the operation of the ASD that he or she is using, as provided in paragraph (c) of this section.
Law enforcement officers who have been certified by state or local governments to conduct breath alcohol testing are deemed to be qualified as BATs. They are not required to also complete the training requirements of this section in order to act as BATs. In order for a test conducted by such an officer to be accepted under DOT alcohol testing requirements, the officer must have been certified by a state or local government to use the EBT or ASD that was used for the test.

§ 40.215 -- What information about the DER do employers have to provide to BATs and STTs?

As an employer, you must provide to the STTs and BATs the name and telephone number of the appropriate DER (and C/TPA, where applicable) to contact about any problems or issues that may arise during the testing process.

§ 40.217 -- Where is other information on the role of STTs and BATs found in this regulation?

You can find other information on the role and functions of STTs and BATs in the following sections of this part:
§ 40.3-Definitions; § 40.223-Responsibility for supervising employees being tested; §§ 40.225-40.227-Use of the alcohol testing form; §§ 40.241-40.245-Screening test procedures with ASDs and EBTs; §§ 40.251-40.255-Confirmation test procedures; § 40.261-Refusals to test; §§ 40.263-40.265-Insufficient saliva or breath; § 40.267-Problems requiring cancellation of tests; §§ 40.269-40.271-Correcting problems in tests.

Subpart K--Testing Sites, Forms, Equipment and Supplies Used in Alcohol Testing

§ 40.221 -- Where does an alcohol test take place?
(a) A DOT alcohol test must take place at an alcohol testing site meeting the requirements of this section.
(b) If you are operating an alcohol testing site, you must ensure that it meets the security requirements of § 40.223.
(c) If you are operating an alcohol testing site, you must ensure that it provides visual and aural privacy to the employee being tested, sufficient to prevent unauthorized persons from seeing or hearing test results.
(d) If you are operating an alcohol testing site, you must ensure that it has all needed personnel, materials, equipment, and facilities to provide for the collection and analysis of breath and/or saliva samples, and a suitable clean surface for writing.
(e) If an alcohol testing site fully meeting all the visual and aural privacy requirements of paragraph (c) is not readily available, this part allows a reasonable suspicion or post-accident test to be conducted at a site that partially meets these requirements. In this case, the site must afford visual and aural privacy to the employee to the greatest extent practicable.
(f) An alcohol testing site can be in a medical facility, a mobile facility (e.g., a van), a dedicated collection facility, or any other location meeting the requirements of this section.

§ 40.223 -- What steps must be taken to protect the security of alcohol testing sites?
(a) If you are a BAT, STT, or other person operating an alcohol testing site, you must prevent unauthorized personnel from entering the testing site.
(1) The only people you are to treat as authorized persons are employees being tested, BATs, STTs, and other alcohol testing site workers, DERs, employee representatives authorized by the employer (e.g., on the basis of employer policy or labor-management agreement), and DOT agency representatives.

(2) You must ensure that all persons are under the supervision of a BAT or STT at all times when permitted into the site.

(3) You may remove any person who obstructs, interferes with, or causes unnecessary delay in the testing process.

(b) As the BAT or STT, you must not allow any person other than you, the employee, or a DOT agency representative to actually witness the testing process (see §§ 40.241-40.255).

(c) If you are operating an alcohol testing site, you must ensure that when an EBT or ASD is not being used for testing, you store it in a secure place.

(d) If you are operating an alcohol testing site, you must ensure that no one other than BATs or other employees of the site have access to the site when an EBT is unsecured.

(e) As a BAT or STT, to avoid distraction that could compromise security, you are limited to conducting an alcohol test for only one employee at a time.

(1) When an EBT screening test on an employee indicates an alcohol concentration of 0.02 or higher, and the same EBT will be used for the confirmation test, you are not allowed to use the EBT for a test on another employee before completing the confirmation test on the first employee.

(2) As a BAT who will conduct both the screening and the confirmation test, you are to complete the entire screening and confirmation process on one employee before starting the screening process on another employee.

(3) You are not allowed to leave the alcohol testing site while the testing process for a given employee is in progress, except to notify a supervisor or contact a DER for assistance in the case an employee or other person who obstructs, interferes with, or unnecessarily delays the testing process.

§ 40.225 -- What form is used for an alcohol test?

(a) The DOT Alcohol Testing Form (ATF) must be used for every DOT alcohol test. The ATF must be a three-part carbonless manifold form. The ATF is found in Appendix G to this part. You may view this form on the ODAPC web site (http://www.dot.gov/ost/dapc).

(b) As an employer in the DOT alcohol testing program, you are not permitted to modify or revise the ATF except as follows:

(1) You may include other information needed for billing purposes, outside the boundaries of the form.

(2) You may use a ATF directly generated by an EBT which omits the space for affixing a separate printed result to the ATF, provided the EBT prints the result directly on the ATF.

(3) You may use an ATF that has the employer's name, address, and telephone number preprinted. In addition, a C/TPA's name, address, and telephone number may be included, to assist with negative results.

(4) You may use an ATF in which all pages are printed on white paper. The white pages must have either clearly discernible borders in the specified color for each page or designation statements for each copy in the specified color.
(5) As a BAT or STT, you may add, on the "Remarks" line of the ATF, the name of the DOT agency under whose authority the test occurred.
(6) As a BAT or STT, you may use a ATF that has your name, address, and telephone number preprinted, but under no circumstances can your signature be preprinted.
(c) As an employer, you may use an equivalent foreign-language version of the ATF approved by ODAPC. You may use such a non-English language form only in a situation where both the employee and BAT/STT understand and can use the form in that language.

§ 40.227 -- May employers use the ATF for non-DOT tests, or non-DOT forms for DOT tests?
(a) No, as an employer, BAT, or STT, you are prohibited from using the ATF for non-DOT alcohol tests. You are also prohibited from using non-DOT forms for DOT alcohol tests. Doing either subjects you to enforcement action under DOT agency regulations.
(b) If the STT or BAT, either by mistake, or as the only means to conduct a test under difficult circumstances (e.g., post-accident test with insufficient time to obtain the ATF), uses a non-DOT form for a DOT test, the use of a non-DOT form does not, in and of itself, require the employer or service agent to cancel the test. However, in order for the test to be considered valid, a signed statement must be obtained from the STT or BAT in accordance with § 40.271(b).

§ 40.229 -- What devices are used to conduct alcohol screening tests?
EBTs and ASDs on the NHTSA conforming products lists (CPL) for evidential and non-evidential devices are the only devices you are allowed to use to conduct alcohol screening tests under this part. An ASD can be used only for screening tests for alcohol, and may not be used for confirmation tests.

§ 40.231 -- What devices are used to conduct alcohol confirmation tests?
(a) EBTs on the NHTSA CPL for evidential devices that meet the requirements of paragraph (b) of this section are the only devices you may use to conduct alcohol confirmation tests under this part. Note that, among devices on the CPL for EBTs, only those devices listed without an asterisk (*) are authorized for use in confirmation testing in the DOT alcohol testing program.
(b) To conduct a confirmation test, you must use an EBT that has the following capabilities:
   (1) Provides a printed triplicate result (or three consecutive identical copies of a result) of each breath test;
   (2) Assigns a unique number to each completed test, which the BAT and employee can read before each test and which is printed on each copy of the result;
   (3) Prints, on each copy of the result, the manufacturer's name for the device, its serial number, and the time of the test;
   (4) Distinguishes alcohol from acetone at the 0.02 alcohol concentration level;
   (5) Tests an air blank; and
   (6) Performs an external calibration check.

§ 40.233 -- What are the requirements for proper use and care of EBTs?
(a) As an EBT manufacturer, you must submit, for NHTSA approval, a quality assurance plan (QAP) for your EBT before NHTSA places the EBT on the CPL.
   (1) Your QAP must specify the methods used to perform external calibration checks on the EBT, the tolerances within which the EBT is regarded as being in proper calibration, and the intervals at which these checks must be performed. In designating these intervals, your QAP must take into account factors like frequency of use, environmental conditions (e.g., temperature, humidity, altitude) and type of operation (e.g., stationary or mobile).
   (2) Your QAP must also specify the inspection, maintenance, and calibration requirements and intervals for the EBT.
(b) As the manufacturer, you must include, with each EBT, instructions for its use and care consistent with the QAP.
(c) As the user of the EBT (e.g., employer, service agent), you must do the following:
   (1) You must follow the manufacturer's instructions (see paragraph (b) of this section), including performance of external calibration checks at the intervals the instructions specify.
   (2) In conducting external calibration checks, you must use only calibration devices appearing on NHTSA's CPL for "Calibrating Units for Breath Alcohol Tests."
   (3) If an EBT fails an external check of calibration, you must take the EBT out of service. You may not use the EBT again for DOT alcohol testing until it is repaired and passes an external calibration check.
   (4) You must maintain records of the inspection, maintenance, and calibration of EBTs as provided in § 40.333(a)(2).
   (5) You must ensure that inspection, maintenance, and calibration of the EBT are performed by its manufacturer or a maintenance representative certified either by the manufacturer or by a state health agency or other appropriate state agency.

§ 40.235 -- What are the requirements for proper use and care of ASDs?
(a) As an ASD manufacturer, you must submit, for NHTSA approval, a QAP for your ASD before NHTSA places the ASD on the CPL. Your QAP must specify the methods used for quality control checks, temperatures at which the ASD must be stored and used, the shelf life of the device, and environmental conditions (e.g., temperature, altitude, humidity) that may affect the ASD's performance.
(b) As a manufacturer, you must include with each ASD instructions for its use and care consistent with the QAP. The instructions must include directions on the proper use of the ASD, and, where applicable the time within which the device must be read, and the manner in which the reading is made.
(c) As the user of the ADS (e.g., employer, STT), you must follow the QAP instructions.
(d) You are not permitted to use an ASD that does not pass the specified quality control checks or that has passed its expiration date.
(e) As an employer, with respect to breath ASDs, you must also follow the device use and care requirements of § 40.233.

Subpart L--Alcohol Screening Tests

§ 40.241 -- What are the first steps in any alcohol screening test?
As the BAT or STT you will take the following steps to begin all alcohol screening tests, regardless of the type of testing device you are using:

(a) When a specific time for an employee's test has been scheduled, or the collection site is at the employee's worksite, and the employee does not appear at the collection site at the scheduled time, contact the DER to determine the appropriate interval within which the DER has determined the employee is authorized to arrive. If the employee's arrival is delayed beyond that time, you must notify the DER that the employee has not reported for testing. In a situation where a C/TPA has notified an owner/operator or other individual employee to report for testing and the employee does not appear, the C/TPA must notify the employee that he or she has refused to test.

(b) Ensure that, when the employee enters the alcohol testing site, you begin the alcohol testing process without undue delay. For example, you must not wait because the employee says he or she is not ready or because an authorized employer or employee representative is delayed in arriving.

(1) If the employee is also going to take a DOT drug test, you must, to the greatest extent practicable, ensure that the alcohol test is completed before the urine collection process begins.

(2) If the employee needs medical attention (e.g., an injured employee in an emergency medical facility who is required to have a post-accident test), do not delay this treatment to conduct a test.

(c) Require the employee to provide positive identification. You must see a photo ID issued by the employer (other than in the case of an owner-operator or other self-employer individual) or a Federal, state, or local government (e.g., a driver's license). You may not accept faxes or photocopies of identification. Positive identification by an employer representative (not a co-worker or another employee being tested) is also acceptable. If the employee cannot produce positive identification, you must contact a DER to verify the identity of the employee.

(d) If the employee asks, provide your identification to the employee. Your identification must include your name and your employer's name but is not required to include your picture, address, or telephone number.

(e) Explain the testing procedure to the employee, including showing the employee the instructions on the back of the ATF.

(f) Complete Step 1 of the ATF.

(g) Direct the employee to complete Step 2 on the ATF and sign the certification. If the employee refuses to sign this certification, you must document this refusal on the "Remarks" line of the ATF and immediately notify the DER. This is a refusal to test.

§ 40.243 -- What is the procedure for an alcohol screening test using an EBT or non-evidential breath ASD?

As the BAT or STT, you must take the following steps:

(a) Select, or allow the employee to select, an individually wrapped or sealed mouthpiece from the testing materials.

(b) Open the individually wrapped or sealed mouthpiece in view of the employee and insert it into the device in accordance with the manufacturer's instructions.

(c) Instruct the employee to blow steadily and forcefully into the mouthpiece for at least six seconds or until the device indicates that an adequate amount of breath has been obtained.

(d) Show the employee the displayed test result.
(e) If the device is one that prints the test number, testing device name and serial number, time, and result directly onto the ATF, you must check to ensure that the information has been printed correctly onto the ATF.

(f) If the device is one that prints the test number, testing device name and serial number, time and result, but on a separate printout rather than directly onto the ATF, you must affix the printout of the information to the designated space on the ATF with tamper-evident tape or use a self-adhesive label that is tamper-evident.

(g) If the device is one that does not print the test number, testing device name and serial number, time, and result, or it is a device not being used with a printer, you must record this information in Step 3 of the ATF.

§ 40.245 -- What is the procedure for an alcohol screening test using a saliva ASD?

As the STT, you must take the following steps:

(a) Check the expiration date on the device and show it to the employee. You may not use the device after its expiration date.

(b) Open an individually wrapped or sealed package containing the device in the presence of the employee.

(c) Offer the employee the opportunity to use the device. If the employee uses it, you must instruct the employee to insert it into his or her mouth and use it in a manner described by the device's manufacturer.

(d) If the employee chooses not to use the device, or in all cases in which a new test is necessary because the device did not activate (see paragraph (g) of this section), you must insert the device into the employee's mouth and gather saliva in the manner described by the device's manufacturer. You must wear single-use examination or similar gloves while doing so and change them following each test.

(e) When the device is removed from the employee's mouth, you must follow the manufacturer's instructions regarding necessary next steps in ensuring that the device has activated.

(f) (1) If you were unable to successfully follow the procedures of paragraphs (c) through (e) of this section (e.g., the device breaks, you drop the device on the floor), you must discard the device and conduct a new test using a new device.

(2) The new device you use must be one that has been under your control or that of the employer before the test.

(3) You must note on the "Remarks" line of the ATF the reason for the new test. (Note: You may continue using the same ATF with which you began the test.)

(4) You must offer the employee the choice of using the device or having you use it unless the employee, in the opinion of the STT or BAT, was responsible (e.g., the employee dropped the device) for the new test needing to be conducted.

(5) If you are unable to successfully follow the procedures of paragraphs (c) through (e) of this section on the new test, you must end the collection and put an explanation on the "Remarks" line of the ATF.

(6) You must then direct the employee to take a new test immediately, using an EBT for the screening test.

(g) If you are able to successfully follow the procedures of paragraphs (c)-(e) of this section, but the device does not activate, you must discard the device and conduct a new test, in the same manner as provided in paragraph (f) of this section. In this case, you must place the device into the employee's mouth to collect saliva for the new test.
You must read the result displayed on the device no sooner than the device's manufacturer instructs. In all cases the result displayed must be read within 15 minutes of the test. You must then show the device and its reading to the employee and enter the result on the ATF.

You must never re-use devices, swabs, gloves or other materials used in saliva testing.

You must note the fact that you used a saliva ASD in Step 3 of the ATF.

§ 40.247 -- What procedures does the BAT or STT follow after a screening test result?

(a) If the test result is an alcohol concentration of less than 0.02, as the BAT or STT, you must do the following:
   (1) Sign and date Step 3 of the ATF; and
   (2) Transmit the result to the DER in a confidential manner, as provided in § 40.255.

(b) If the test result is an alcohol concentration of 0.02 or higher, as the BAT or STT, you must direct the employee to take a confirmation test.
   (1) If you are the BAT who will conduct the confirmation test, you must then conduct the test using the procedures beginning at § 40.251.
   (2) If you are not the BAT who will conduct the confirmation test, direct the employee to take a confirmation test, sign and date Step 3 of the ATF, and give the employee Copy 2 of the ATF.
   (3) If the confirmation test will be performed at a different site from the screening test, you must take the following additional steps:
      (i) Advise the employee not to eat, drink, put anything (e.g., cigarette, chewing gum) into his or her mouth, or belch;
      (ii) Tell the employee the reason for the waiting period required by § 40.251(a) (i.e., to prevent an accumulation of mouth alcohol from leading to an artificially high reading);
      (iii) Explain that following your instructions concerning the waiting period is to the employee's benefit;
      (iv) Explain that the confirmation test will be conducted at the end of the waiting period, even if the instructions have not been followed;
      (v) Note on the "Remarks" line of the ATF that the waiting period instructions were provided;
      (vi) Instruct the person accompanying the employee to carry a copy of the ATF to the BAT who will perform the confirmation test; and
      (vii) Ensure that you or another BAT, STT, or employer representative observe the employee as he or she is transported to the confirmation testing site. You must direct the employee not to attempt to drive a motor vehicle to the confirmation testing site.

(c) If the screening test is invalid, you must, as the BAT or STT, tell the employee the test is cancelled and note the problem on the "Remarks" line of the ATF. If practicable, repeat the testing process (see § 40.271).

Subpart M--Alcohol Confirmation Tests

§ 40.251 -- What are the first steps in an alcohol confirmation test?
As the BAT for an alcohol confirmation test, you must follow these steps to begin the confirmation test process:

(a) You must carry out a requirement for a waiting period before the confirmation test, by taking the following steps:

(1) You must ensure that the waiting period lasts at least 15 minutes, starting with the completion of the screening test. After the waiting period has elapsed, you should begin the confirmation test as soon as possible, but not more than 30 minutes after the completion of the screening test.

   (i) If the confirmation test is taking place at a different location from the screening test (see § 40.247(b)(3)) the time of transit between sites counts toward the waiting period if the STT or BAT who conducted the screening test provided the waiting period instructions.

   (ii) If you cannot verify, through review of the ATF, that waiting period instructions were provided, then you must carry out the waiting period requirement.

   (iii) You or another BAT or STT, or an employer representative, must observe the employee during the waiting period.

(2) Concerning the waiting period, you must tell the employee:

   (i) Not to eat, drink, put anything (e.g., cigarette, chewing gum) into his or her mouth, or belch;

   (ii) The reason for the waiting period (i.e., to prevent an accumulation of mouth alcohol from leading to an artificially high reading);

   (iii) That following your instructions concerning the waiting period is to the employee's benefit; and

   (iv) That the confirmation test will be conducted at the end of the waiting period, even if the instructions have not been followed.

(3) If you become aware that the employee has not followed the instructions, you must note this on the "Remarks" line of the ATF.

(b) If you did not conduct the screening test for the employee, you must require positive identification of the employee, explain the confirmation procedures, and use a new ATF. You must note on the "Remarks" line of the ATF that a different BAT or STT conducted the screening test.

(c) Complete Step 1 of the ATF.

(d) Direct the employee to complete Step 2 on the ATF and sign the certification. If the employee refuses to sign this certification, you must document this refusal on the "Remarks" line of the ATF and immediately notify the DER. This is a refusal to test.

(e) Even if more than 30 minutes have passed since the screening test result was obtained, you must begin the confirmation test procedures in § 40.253, not another screening test.

(f) You must note on the "Remarks" line of the ATF the time that elapsed between the two events, and if the confirmation test could not begin within 30 minutes of the screening test, the reason why.

(g) Beginning the confirmation test procedures after the 30 minutes have elapsed does not invalidate the screening or confirmation tests, but it may constitute a regulatory violation subject to DOT agency sanction.

§ 40.253 -- What are the procedures for conducting an alcohol confirmation test?
As the BAT conducting an alcohol confirmation test, you must follow these steps in order to complete the confirmation test process:

(a) In the presence of the employee, you must conduct an air blank on the EBT you are using before beginning the confirmation test and show the reading to the employee.
   (1) If the reading is 0.00, the test may proceed. If the reading is greater than 0.00, you must conduct another air blank.
   (2) If the reading on the second air blank is 0.00, the test may proceed. If the reading is greater than 0.00, you must take the EBT out of service.
   (3) If you take an EBT out of service for this reason, no one may use it for testing until the EBT is found to be within tolerance limits on an external check of calibration.
   (4) You must proceed with the test of the employee using another EBT, if one is available.

(b) You must open a new individually wrapped or sealed mouthpiece in view of the employee and insert it into the device in accordance with the manufacturer's instructions.

(c) You must ensure that you and the employee read the sequential test number displayed on the EBT.

(d) You must instruct the employee to blow steadily and forcefully into the mouthpiece for at least six seconds or until the device indicates that an adequate amount of breath has been obtained.

(e) You must show the employee the result displayed on the EBT.

(f) You must show the employee the result and unique test number that the EBT prints out either directly onto the ATF or onto a separate printout.

(g) If the EBT provides a separate printout of the result, you must attach the printout to the designated space on the ATF with tamper-evident tape, or use a self-adhesive label that is tamper-evident.

§ 40.255 -- What happens next after the alcohol confirmation test result?

(a) After the EBT has printed the result of an alcohol confirmation test, you must, as the BAT, take the following additional steps:
   (1) Sign and date Step 3 of the ATF.
   (2) If the alcohol confirmation test result is lower than 0.02, nothing further is required of the employee. As the BAT, you must sign and date Step 3 of the ATF.
   (3) If the alcohol confirmation test result is 0.02 or higher, direct the employee to sign and date Step 4 of the ATF. If the employee does not do so, you must note this on the "Remarks" line of the ATF. However, this is not considered a refusal to test.
   (4) If the test is invalid, tell the employee the test is cancelled and note the problem on the "Remarks" line of the ATF. If practicable, conduct a re-test. (see § 40.271).
   (5) Immediately transmit the result directly to the DER in a confidential manner.
      (i) You may transmit the results using Copy 1 of the ATF, in person, by telephone, or by electronic means. In any case, you must immediately notify the DER of any result of 0.02 or greater by any means (e.g., telephone or secure fax machine) that ensures the result is immediately received by the DER. You must not transmit these results through C/TPAs or other service agents.
      (ii) If you do not make the initial transmission in writing, you must follow up the initial transmission with Copy 1 of the ATF.

(b) As an employer, you must take the following steps with respect to the receipt and storage of alcohol test result information:
(1) If you receive any test results that are not in writing (e.g., by telephone or electronic means), you must establish a mechanism to establish the identity of the BAT sending you the results.

(2) You must store all test result information in a way that protects confidentiality.

Subpart N—Problems in Alcohol Testing

§ 40.261 -- What is a refusal to take an alcohol test, and what are the consequences?
(a) As an employee, you are considered to have refused to take an alcohol test if you:
   (1) Fail to appear for any test within a reasonable time, as determined by the employer, after being directed to do so by the employer. This includes the failure of an employee (including an owner-operator) to appear for a test when called by C/TPA (see § 40.241(b)(1));
   (2) Fail to remain at the testing site until the testing process is complete;
   (3) Fail to attempt to provide a saliva or breath specimen, as applicable, for any test required by this part or DOT agency regulations;
   (4) Fail to provide a sufficient breath specimen, and the physician has determined, through a required medical evaluation, that there was no adequate medical explanation for the failure (see § 40.265(c));
   (5) Fail to undergo a medical examination or evaluation, as directed by the employer as part of the insufficient breath procedures outlined at § 40.265(c);
   (6) Fail to sign the certification at Step 2 of the ATF (see § 40.241(b)(7)); or
   (7) Fail to cooperate with any part of the testing process.
(b) As an employee, if you refuse to take an alcohol test, you incur the same consequences specified under DOT agency regulations for a violation of those DOT agency regulations.
(c) As a BAT or an STT, or as the physician evaluating a "shy lung" situation, when an employee refuses to test as provided in paragraph (a) of this section, you must terminate the portion of the testing process in which you are involved, document the refusal on the ATF (or in a separate document which you cause to be attached to the form), immediately notify the DER by any means (e.g., telephone or secure fax machine) that ensures the refusal notification is immediately received. You must make this notification directly to the DER (not using a C/TPA as an intermediary).
(d) As an employee, when you refuse to take a non-DOT test or to sign a non-DOT form, you have not refused to take a DOT test. There are no consequences under DOT agency regulations for such a refusal.

§ 40.263 -- What happens when an employee is unable to provide a sufficient amount of saliva for an alcohol screening test?
(a) As the STT, you must take the following steps if an employee is unable to provide sufficient saliva to complete a test on a saliva screening device (e.g., the employee does not provide sufficient saliva to activate the device).
   (1) You must conduct a new screening test using a new screening device.
   (2) If the employee refuses to make the attempt to complete the new test, you must discontinue testing, note the fact on the "Remarks" line of the ATF, and immediately notify the DER. This is a refusal to test.
(3) If the employee has not provided a sufficient amount of saliva to complete the
new test, you must note the fact on the "Remarks" line of the ATF and immediately
notify the DER.
(b) As the DER, when the STT informs you that the employee has not provided a
sufficient amount of saliva (see paragraph (a)(3) of this section), you must immediately
arrange to administer an alcohol test to the employee using an EBT or other breath
testing device.

§ 40.265 -- What happens when an employee is unable to provide a sufficient
amount of breath for an alcohol test?
(a) If an employee does not provide a sufficient amount of breath to permit a valid
breath test, you must take the steps listed in this section.
(b) As the BAT or STT, you must instruct the employee to attempt again to provide a
sufficient amount of breath and about the proper way to do so.
   (1) If the employee refuses to make the attempt, you must discontinue the test,
   note the fact on the "Remarks" line of the ATF, and immediately notify the DER. This is
   a refusal to test.
   (2) If the employee again attempts and fails to provide a sufficient amount of
   breath, you may provide another opportunity to the employee to do so if you believe that
   there is a strong likelihood that it could result in providing a sufficient amount of breath.
   (3) When the employee's attempts under paragraph (b)(2) of this section have
   failed to produce a sufficient amount of breath, you must note the fact on the "Remarks"
   line of the ATF and immediately notify the DER.
   (4) If you are using an EBT that has the capability of operating manually, you
   may attempt to conduct the test in manual mode.
   (5) If you are qualified to use a saliva ASD and you are in the screening test stage,
you may change to a saliva ASD only to complete the screening test.
(c) As the employer, when the BAT or STT informs you that the employee has not
provided a sufficient amount of breath, you must direct the employee to obtain, within
five days, an evaluation from a licensed physician who is acceptable to you and who has
expertise in the medical issues raised by the employee's failure to provide a sufficient
specimen.
   (1) You are required to provide the physician who will conduct the evaluation
   with the following information and instructions:
      (i) That the employee was required to take a DOT breath alcohol test, but
      was unable to provide a sufficient amount of breath to complete the test;
      (ii) The consequences of the appropriate DOT agency regulation for
      refusing to take the required alcohol test;
      (iii) That the physician must provide you with a signed statement of his or
      her conclusions; and
      (iv) That the physician, in his or her reasonable medical judgment, must
      base those conclusions on one of the following determinations:
         (A) A medical condition has, or with a high degree of probability
         could have, precluded the employee from providing a sufficient amount of
         breath. The physician must not include in the signed statement detailed
         information on the employee's medical condition. In this case, the test is
cancelled.
(B) There is not an adequate basis for determining that a medical condition has, or with a high degree of probability could have, precluded the employee from providing a sufficient amount of breath. This constitutes a refusal to test.

(C) For purposes of paragraphs (c)(1)(iv)(A) and (B) of this section, a medical condition includes an ascertainable physiological condition (e.g., a respiratory system dysfunction) or a medically documented pre-existing psychological disorder, but does not include unsupported assertions of "situational anxiety" or hyperventilation.

(2) As the physician making the evaluation, after making your determination, you must provide a written statement of your conclusions and the basis for them to the DER directly (and not through a C/TPA acting as an intermediary). You must not include in this statement detailed information on the employee's medical condition beyond what is necessary to explain your conclusion.

(3) Upon receipt of the report from the examining physician, as the DER you must immediately inform the employee and take appropriate action based upon your DOT agency regulations.

§ 40.267 -- What problems always cause an alcohol test to be cancelled?

As an employer, a BAT, or an STT, you must cancel an alcohol test if any of the following problems occur. These are "fatal flaws." You must inform the DER that the test was cancelled and must be treated as if the test never occurred. These problems are:

(a) In the case of a screening test conducted on a saliva ASD:
   (1) The STT reads the result either sooner than or later than the time allotted by the manufacturer (see § 40.245(h));
   (2) The device does not activate (see § 40.245(g)); or
   (3) The device is used for a test after the expiration date printed on its package (see § 40.245(a)).
(b) In the case of a screening or confirmation test conducted on an EBT, the sequential test number or alcohol concentration displayed on the EBT is not the same as the sequential test number or alcohol concentration on the printed result (see § 40.253(c), (e) and (f)).
(c) In the case of a confirmation test:
   (1) The BAT conducts the confirmation test before the end of the minimum 15-minute waiting period (see § 40.251(a)(1));
   (2) The BAT does not conduct an air blank before the confirmation test (see § 40.253(a));
   (3) There is not a 0.00 result on the air blank conducted before the confirmation test (see § 40.253(a)(1) and (2));
   (4) The EBT does not print the result (see § 40.253(f)); or
   (5) The next external calibration check of the EBT produces a result that differs by more than the tolerance stated in the QAP from the known value of the test standard. In this case, every result of 0.02 or above obtained on the EBT since the last valid external calibration check is cancelled (see § 40.233(a)(1) and (d)).
§ 40.269 -- What problems cause an alcohol test to be cancelled unless they are corrected?

As a BAT or STT, or employer, you must cancel an alcohol test if any of the following problems occur, unless they are corrected. These are "correctable flaws." These problems are:

(a) The BAT or STT does not sign the ATF (see §§ 40.247(a)(1) and 40.255(a)(1)).
(b) The BAT or STT fails to note on the "Remarks" line of the ATF that the employee has not signed the ATF after the result is obtained (see § 40.255(a)(2)).
(c) The BAT or STT uses a non-DOT form for the test (see § 40.225(a)).

§ 40.271 -- How are alcohol testing problems corrected?

(a) As a BAT or STT, you have the responsibility of trying to complete successfully an alcohol test for each employee.

(1) If, during or shortly after the testing process, you become aware of any event that will cause the test to be cancelled (see § 40.267), you must try to correct the problem promptly, if practicable. You may repeat the testing process as part of this effort.

(2) If repeating the testing process is necessary, you must begin a new test as soon as possible. You must use a new ATF, a new sequential test number, and, if needed, a new ASD and/or a new EBT. It is permissible to use additional technical capabilities of the EBT (e.g., manual operation) if you have been trained to do so in accordance with § 40.213(c).

(3) If repeating the testing process is necessary, you are not limited in the number of attempts to complete the test, provided that the employee is making a good faith effort to comply with the testing process.

(4) If another testing device is not available for the new test at the testing site, you must immediately notify the DER and advise the DER that the test could not be completed. As the DER who receives this information, you must make all reasonable efforts to ensure that the test is conducted at another testing site as soon as possible.

(b) If, as an STT, BAT, employer or other service agent administering the testing process, you become aware of a "correctable flaw" (see § 40.269) that has not already been corrected, you must take all practicable action to correct the problem so that the test is not cancelled.

(1) If the problem resulted from the omission of required information, you must, as the person responsible for providing that information, supply in writing the missing information and a signed statement that it is true and accurate. For example, suppose you are a BAT and you forgot to make a notation on the "Remarks" line of the ATF that the employee did not sign the certification. You would, when the problem is called to your attention, supply a signed statement that the employee failed or refused to sign the certification after the result was obtained, and that your signed statement is true and accurate.

(2) If the problem is the use of a non-DOT form, you must, as the person responsible for the use of the incorrect form, certify in writing that the incorrect form contains all the information needed for a valid DOT alcohol test. You must also provide a signed statement that the incorrect form was used inadvertently or as the only means of conducting a test, in circumstances beyond your control, and the steps you have taken to prevent future use of non-DOT forms for DOT tests. You must supply this information on the same business day on which you are notified of the problem, transmitting it by fax or courier.
§ 40.273 -- What is the effect of a cancelled alcohol test?
(a) A cancelled alcohol test is neither positive nor negative.
   (1) As an employer, you must not attach to a cancelled test the consequences of a test result that is 0.02 or greater (e.g., removal from a safety-sensitive position).
   (2) As an employer, you must not use a cancelled test in a situation where an employee needs a test result that is below 0.02 (e.g., in the case of a return-to-duty or follow-up test to authorize the employee to perform safety-sensitive functions).
   (3) As an employer, you must not direct a recollection for an employee because a test has been cancelled, except in the situations cited in paragraph (a)(2) of this section or other provisions of this part.
(b) A cancelled test does not count toward compliance with DOT requirements, such as a minimum random testing rate.
(c) When a test must be cancelled, if you are the BAT, STT, or other person who determines that the cancellation is necessary, you must inform the affected DER within 48 hours of the cancellation.
(d) A cancelled DOT test does not provide a valid basis for an employer to conduct a non-DOT test (i.e., a test under company authority).

§ 40.275 -- What is the effect of procedural problems that are not sufficient to cancel an alcohol test?
(a) As an STT, BAT, employer, or a service agent administering the testing process, you must document any errors in the testing process of which you become aware, even if they are not "fatal flaws" or "correctable flaws" listed in this subpart. Decisions about the ultimate impact of these errors will be determined by administrative or legal proceedings, subject to the limitation of paragraph (b) of this section.
(b) No person concerned with the testing process may declare a test cancelled based on a mistake in the process that does not have a significant adverse effect on the right of the employee to a fair and accurate test. For example, it is inconsistent with this part to cancel a test based on a minor administrative mistake (e.g., the omission of the employee's middle initial) or an error that does not affect employee protections under this part. Nor does the failure of an employee to sign in Step 4 of the ATF result in the cancellation of the test. Nor is a test to be cancelled on the basis of a claim by an employee that he or she was improperly selected for testing.
(c) As an employer, these errors, even though not sufficient to cancel an alcohol test result, may subject you to enforcement action under DOT agency regulations.

§ 40.277 -- Are alcohol tests other than saliva or breath permitted under these regulations?
No, other types of alcohol tests (e.g., blood and urine) are not authorized for testing done under this part. Only saliva or breath for screening tests and breath for confirmation tests using approved devices are permitted.

Subpart O--Substance Abuse Professionals and the Return-to-Duty Process

§ 40.281 -- Who is qualified to act as a SAP?
To be permitted to act as a SAP in the DOT drug testing program, you must meet each of the requirements of this section:

(a) **Credentials.** You must have one of the following credentials:
   
   (1) You are a licensed physician (Doctor of Medicine or Osteopathy);
   (2) You are a licensed or certified social worker;
   (3) You are a licensed or certified psychologist;
   (4) You are a licensed or certified employee assistance professional; or
   (5) You are a drug and alcohol counselor certified by the National Association of Alcoholism and Drug Abuse Counselors Certification Commission (NAADAC) or by the International Certification Reciprocity Consortium/Alcohol and Other Drug Abuse (ICRC).

(b) **Basic knowledge.** You must be knowledgeable in the following areas:
   
   (1) You must be knowledgeable about and have clinical experience in the diagnosis and treatment of alcohol and controlled substances-related disorders.
   (2) You must be knowledgeable about the SAP function as it relates to employer interests in safety-sensitive duties.
   (3) You must be knowledgeable about this part, the DOT agency regulations applicable to the employers for whom you evaluate employees, and the DOT SAP Guidelines, and you keep current on any changes to these materials. These documents are available from ODAPC (Department of Transportation, 400 7th Street, SW., Room 10403, Washington DC, 20590 (202-366-3784), or on the ODAPC web site (http://www.dot.gov/ost/dapc).

(c) **Qualification training.** You must receive qualification training meeting the requirements of this paragraph (c).
   
   (1) Qualification training must provide instruction on the following subjects:
      
      (i) Background, rationale, and coverage of the Department's drug and alcohol testing program;
      (ii) 49 CFR Part 40 and DOT agency drug and alcohol testing rules;
      (iii) Key DOT drug testing requirements, including collections, laboratory testing, MRO review, and problems in drug testing;
      (iv) Key DOT alcohol testing requirements, including the testing process, the role of BATs and STTs, and problems in alcohol tests;
      (v) SAP qualifications and prohibitions;
      (vi) The role of the SAP in the return-to-duty process, including the initial employee evaluation, referrals for education and/or treatment, the follow-up evaluation, continuing treatment recommendations, and the follow-up testing plan;
      (vii) SAP consultation and communication with employers, MROs, and treatment providers;
      (viii) Reporting and recordkeeping requirements;
      (ix) Issues that SAPs confront in carrying out their duties under the program.

   (2) Following your completion of qualification training under paragraph (c)(1) of this section, you must satisfactorily complete an examination administered by a nationally-recognized professional or training organization. The examination must comprehensively cover all the elements of qualification training listed in paragraph (c)(1) of this section.

   (3) The following is the schedule for qualification training you must meet
(i) If you became a SAP before August 1, 2001, you must meet the qualification training requirement no later than December 31, 2003.

(ii) If you become a SAP between August 1, 2001, and December 31, 2003, you must meet the qualification training requirement no later than December 31, 2003.

(iii) If you become a SAP on or after January 1, 2004, you must meet the qualification training requirement before you begin to perform SAP functions.

(d) Continuing education. During each three-year period from the date on which you satisfactorily complete the examination under paragraph (c)(2) of this section, you must complete continuing education consisting of at least 12 professional development hours (e.g., CEUs) relevant to performing SAP functions.

(1) This continuing education must include material concerning new technologies, interpretations, recent guidance, rule changes, and other information about developments in SAP practice, pertaining to the DOT program, since the time you met the qualification training requirements of this section.

(2) Your continuing education activities must include documentable assessment tools to assist you in determining whether you have adequately learned the material.

(e) Documentation. You must maintain documentation showing that you currently meet all requirements of this section. You must provide this documentation on request to DOT agency representatives and to employers and C/TPAs who are using or contemplating using your services.

§ 40.283 -- How does a certification organization obtain recognition for its members as SAPs?

(a) If you represent a certification organization that wants DOT to authorize its certified drug and alcohol counselors to be added to § 40.281(a)(5), you may submit a written petition to DOT requesting a review of your petition for inclusion.

(b) You must obtain the National Commission for Certifying Agencies (NCCA) accreditation before DOT will act on your petition.

(c) You must also meet the minimum requirements of Appendix E to this part before DOT will act on your petition.

§ 40.285 -- When is a SAP evaluation required?

(a) As an employee, when you have violated DOT drug and alcohol regulations, you cannot again perform any DOT safety-sensitive duties for any employer until and unless you complete the SAP evaluation, referral, and education/treatment process set forth in this subpart and in applicable DOT agency regulations. The first step in this process is a SAP evaluation.

(b) For purposes of this subpart, a verified positive DOT drug test result, a DOT alcohol test with a result indicating an alcohol concentration of 0.04 or greater, a refusal to test (including by adulterating or substituting a urine specimen) or any other violation of the prohibition on the use of alcohol or drugs under a DOT agency regulation constitutes a DOT drug and alcohol regulation violation.

§ 40.287 -- What information is an employer required to provide concerning SAP services to an employee who has a DOT drug and alcohol regulation violation?

As an employer, you must provide to each employee (including an applicant or new employee) who violates a DOT drug and alcohol regulation a listing of SAPs readily
available to the employee and acceptable to you, with names, addresses, and telephone
numbers. You cannot charge the employee any fee for compiling or providing this list.
You may provide this list yourself or through a C/TPA or other service agent.

§ 40.289 -- Are employers required to provide SAP and treatment services to
employees?
(a) As an employer, you are not required to provide a SAP evaluation or any
subsequent recommended education or treatment for an employee who has violated a
DOT drug and alcohol regulation.
(b) However, if you offer that employee an opportunity to return to a DOT safety-
sensitive duty following a violation, you must, before the employee again performs that
duty, ensure that the employee receives an evaluation by a SAP meeting the requirements
of § 40.281 and that the employee successfully complies with the SAP's evaluation
recommendations.
(c) Payment for SAP evaluations and services is left for employers and employees to
decide and may be governed by existing management-labor agreements and health care
benefits.

§ 40.291 -- What is the role of the SAP in the evaluation, referral, and treatment
process of an employee who has violated DOT agency drug and alcohol testing
regulations?
(a) As a SAP, you are charged with:
   (1) Making a face-to-face clinical assessment and evaluation to determine what
       assistance is needed by the employee to resolve problems associated with alcohol and/or
       drug use;
   (2) Referring the employee to an appropriate education and/or treatment program;
   (3) Conducting a face-to-face follow-up evaluation to determine if the employee
       has actively participated in the education and/or treatment program and has demonstrated
       successful compliance with the initial assessment and evaluation recommendations;
   (4) Providing the DER with a follow-up drug and/or alcohol testing plan for the
       employee; and
   (5) Providing the employee and employer with recommendations for continuing
       education and/or treatment.
(b) As a SAP, you are not an advocate for the employer or employee. Your function
    is to protect the public interest in safety by professionally evaluating the employee and
    recommending appropriate education/treatment, follow-up tests, and aftercare.

§ 40.293 -- What is the SAP's function in conducting the initial evaluation of an
employee?
   As a SAP, for every employee who comes to you following a DOT drug and
   alcohol regulation violation, you must accomplish the following:
(a) Provide a comprehensive face-to-face assessment and clinical evaluation.
(b) Recommend a course of education and/or treatment with which the employee
    must demonstrate successful compliance prior to returning to DOT safety-sensitive duty.
    (1) You must make such a recommendation for every individual who has violated
    a DOT drug and alcohol regulation.
You must make a recommendation for education and/or treatment that will, to the greatest extent possible, protect public safety in the event that the employee returns to the performance of safety-sensitive functions.

Appropriate education may include, but is not limited to, self-help groups (e.g., Alcoholics Anonymous) and community lectures, where attendance can be independently verified, and bona fide drug and alcohol education courses.

Appropriate treatment may include, but is not limited to, in-patient hospitalization, partial in-patient treatment, out-patient counseling programs, and aftercare.

You must provide a written report directly to the DER highlighting your specific recommendations for assistance (see § 40.311(c)).

For purposes of your role in the evaluation process, you must assume that a verified positive test result has conclusively established that the employee committed a DOT drug and alcohol regulation violation. You must not take into consideration in any way, as a factor in determining what your recommendation will be, any of the following:

1. A claim by the employee that the test was unjustified or inaccurate;
2. Statements by the employee that attempt to mitigate the seriousness of a violation of a DOT drug or alcohol regulation (e.g., related to assertions of use of hemp oil, "medical marijuana" use, "contact positives," poppy seed ingestion, job stress); or
3. Personal opinions you may have about the justification or rationale for drug and alcohol testing.

In the course of gathering information for purposes of your evaluation in the case of a drug-related violation, you may consult with the MRO. As the MRO, you are required to cooperate with the SAP and provide available information the SAP requests. It is not necessary to obtain the consent of the employee to provide this information.

May employees or employers seek a second SAP evaluation if they disagree with the first SAP's recommendations?

As an employer, you must not seek a second SAP's evaluation if the employee has already been evaluated by a qualified SAP. If the employee, contrary to paragraph (a) of this section, has obtained a second SAP evaluation, you may not rely on it for any purpose under this part.

Does anyone have the authority to change a SAP's initial evaluation?

Except as provided in paragraph (b) of this section, no one (e.g., an employer, employee, a managed-care provider, any service agent) may change in any way the SAP's evaluation or recommendations for assistance. For example, a third party is not permitted to make more or less stringent a SAP's recommendation by changing the SAP's evaluation or seeking another SAP's evaluation.

The SAP who made the initial evaluation may modify his or her initial evaluation and recommendations based on new or additional information (e.g., from an education or treatment program).

What is the SAP's role and what are the limits on a SAP's discretion in referring employees for education and treatment?
(a) As a SAP, upon your determination of the best recommendation for assistance, you will serve as a referral source to assist the employee's entry into an education and/or treatment program.

(b) To prevent the appearance of a conflict of interest, you must not refer an employee requiring assistance to your private practice or to a person or organization from which you receive payment or to a person or organization in which you have a financial interest. You are precluded from making referrals to entities with which you are financially associated.

(c) There are four exceptions to the prohibitions contained in paragraph (b) of this section. You may refer an employee to any of the following providers of assistance, regardless of your relationship with them:

1. A public agency (e.g., treatment facility) operated by a state, county, or municipality;
2. The employer or a person or organization under contract to the employer to provide alcohol or drug treatment and/or education services (e.g., the employer's contracted treatment provider);
3. The sole source of therapeutically appropriate treatment under the employee's health insurance program (e.g., the single substance abuse in-patient treatment program made available by the employee's insurance coverage plan); or
4. The sole source of therapeutically appropriate treatment reasonably available to the employee (e.g., the only treatment facility or education program reasonably located within the general commuting area).

§ 40.301 -- What is the SAP's function in the follow-up evaluation of an employee?

(a) As a SAP, after you have prescribed assistance under § 40.293, you must re-evaluate the employee to determine if the employee has successfully carried out your education and/or treatment recommendations.

1. This is your way to gauge for the employer the employee's ability to demonstrate successful compliance with the education and/or treatment plan.
2. Your evaluation may serve as one of the reasons the employer decides to return the employee to safety-sensitive duty.

(b) As the SAP making the follow-up evaluation determination, you must:

1. Confer with or obtain appropriate documentation from the appropriate education and/or treatment program professionals where the employee was referred; and
2. Conduct a face-to-face clinical interview with the employee to determine if the employee demonstrates successful compliance with your initial evaluation recommendations.

(c) If the employee has demonstrated successful compliance, you must provide a written report directly to the DER highlighting your clinical determination that the employee has done so with your initial evaluation recommendation (see § 40.311(d)).

1. You may determine that an employee has successfully demonstrated compliance even though the employee has not yet completed the full regimen of education and/or treatment you recommended or needs additional assistance. For example, if the employee has successfully completed the 30-day in-patient program you prescribed, you may make a "successful compliance" determination even though you conclude that the employee has not yet completed the out-patient counseling you recommended or should continue in an aftercare program.
(d) (1) As the SAP, if you believe, as a result of the follow-up evaluation, that the employee has not demonstrated successful compliance with your recommendations, you must provide written notice directly to the DER (see § 40.311(e)).

(2) As an employer who receives the SAP's written notice that the employee has not successfully complied with the SAP's recommendations, you must not return the employee to the performance of safety-sensitive duties.

(3) As the SAP, you may conduct additional follow-up evaluation(s) if the employer determines that doing so is consistent with the employee's progress as you have reported it and with the employer's policy and/or labor-management agreements.

(4) As the employer, following a SAP report that the employee has not demonstrated successful compliance, you may take personnel action consistent with your policy and/or labor-management agreements.

§ 40.303 -- What happens if the SAP believes the employee needs additional treatment, aftercare, or support group services even after the employee returns to safety-sensitive duties?

(a) As a SAP, if you believe that ongoing services (in addition to follow-up tests) are needed to assist an employee to maintain sobriety or abstinence from drug use after the employee resumes the performance of safety-sensitive duties, you must provide recommendations for these services in your follow-up evaluation report (see § 40.311(d)(10)).

(b) As an employer receiving a recommendation for these services from a SAP, you may, as part of a return-to-duty agreement with the employee, require the employee to participate in the recommended services. You may monitor and document the employee's participation in the recommended services. You may also make use of SAP and employee assistance program (EAP) services in assisting and monitoring employees' compliance with SAP recommendations. Nothing in this section permits an employer to fail to carry out its obligations with respect to follow-up testing (see § 40.309).

(c) As an employee, you are obligated to comply with the SAP's recommendations for these services. If you fail or refuse to do so, you may be subject to disciplinary action by your employer.

§ 40.305 -- How does the return-to-duty process conclude?

(a) As the employer, if you decide that you want to permit the employee to return to the performance of safety-sensitive functions, you must ensure that the employee takes a return-to-duty test. This test cannot occur until after the SAP has determined that the employee has successfully complied with prescribed education and/or treatment. The employee must have a negative drug test result and/or an alcohol test with an alcohol concentration of less than 0.02 before resuming performance of safety-sensitive duties.

(b) As an employer, you must not return an employee to safety-sensitive duties until the employee meets the conditions of paragraph (a) of this section. However, you are not required to return an employee to safety-sensitive duties because the employee has met these conditions. That is a personnel decision that you have the discretion to make, subject to collective bargaining agreements or other legal requirements.

(c) As a SAP or MRO, you must not make a "fitness for duty" determination as part of this re-evaluation unless required to do so under an applicable DOT agency regulation. It is the employer, rather than you, who must decide whether to put the employee back to work in a safety-sensitive position.
§ 40.307 -- What is the SAP's function in prescribing the employee's follow-up tests?

(a) As a SAP, for each employee who has committed a DOT drug or alcohol regulation violation, and who seeks to resume the performance of safety-sensitive functions, you must establish a written follow-up testing plan. You do not establish this plan until after you determine that the employee has successfully complied with your recommendations for education and/or treatment.

(b) You must present a copy of this plan directly to the DER (see § 40.311(d)(9)).

(c) You are the sole determiner of the number and frequency of follow-up tests and whether these tests will be for drugs, alcohol, or both, unless otherwise directed by the appropriate DOT agency regulation. For example, if the employee had a positive drug test, but your evaluation or the treatment program professionals determined that the employee had an alcohol problem as well, you should require that the employee have follow-up tests for both drugs and alcohol.

(d) However, you must, at a minimum, direct that the employee be subject to six unannounced follow-up tests in the first 12 months of safety-sensitive duty following the employee's return to safety-sensitive functions.

1. You may require a greater number of follow-up tests during the first 12-month period of safety-sensitive duty (e.g., you may require one test a month during the 12-month period; you may require two tests per month during the first 6-month period and one test per month during the final 6-month period).

2. You may also require follow-up tests during the 48 months of safety-sensitive duty following this first 12-month period.

3. You are not to establish the actual dates for the follow-up tests you prescribe. The decision on specific dates to test is the employer's.

4. As the employer, you must not impose additional testing requirements (e.g., under company authority) on the employee that go beyond the SAP's follow-up testing plan.

(e) The requirements of the SAP's follow-up testing plan "follow the employee" to subsequent employers or through breaks in service.

Example 1 to Paragraph (e): The employee returns to duty with Employer A. Two months afterward, after completing the first two of six follow-up tests required by the SAP's plan, the employee quits his job with Employer A and begins to work in a similar position for Employer B. The employee remains obligated to complete the four additional tests during the next 10 months of safety-sensitive duty, and Employer B is responsible for ensuring that the employee does so. Employer B learns of this obligation through the inquiry it makes under § 40.25.

Example 2 to Paragraph (e): The employee returns to duty with Employer A. Three months later, after the employee completes the first two of six follow-up tests required by the SAP's plan, Employer A lays the employee off for economic or seasonal employment reasons. Four months later, Employer A recalls the employee. Employer A must ensure that the employee completes the remaining four follow-up tests during the next nine months.

(f) As the SAP, you may modify the determinations you have made concerning follow-up tests. For example, even if you recommended follow-up testing beyond the first 12-months, you can terminate the testing requirement at any time after the first year of testing. You must not, however, modify the requirement that the employee take at least
six follow-up tests within the first 12 months after returning to the performance of safety-sensitive functions.

§ 40.309 -- What are the employer's responsibilities with respect to the SAP's directions for follow-up tests?
(a) As the employer, you must carry out the SAP's follow-up testing requirements. You may not allow the employee to continue to perform safety-sensitive functions unless follow-up testing is conducted as directed by the SAP.
(b) You should schedule follow-up tests on dates of your own choosing, but you must ensure that the tests are unannounced with no discernable pattern as to their timing, and that the employee is given no advance notice.
(c) You cannot substitute any other tests (e.g., those carried out under the random testing program) conducted on the employee for this follow-up testing requirement.
(d) You cannot count a follow-up test that has been cancelled as a completed test. A cancelled follow-up test must be recollected.

§ 40.311 -- What are the requirements concerning SAP reports?
(a) As the SAP conducting the required evaluations, you must send the written reports required by this section in writing directly to the DER and not to a third party or entity for forwarding to the DER (except as provided in § 40.355(e)). You may, however, forward the document simultaneously to the DER and to a C/TPA.
(b) As an employer, you must ensure that you receive SAP written reports directly from the SAP performing the evaluation and that no third party or entity changed the SAP's report in any way.
(c) The SAP's written report, following an initial evaluation that determines what level of assistance is needed to address the employee's drug and/or alcohol problems, must be on the SAP's own letterhead (and not the letterhead of another service agent) signed and dated by the SAP, and must contain the following delineated items:
   (1) Employee's name and SSN;
   (2) Employer's name and address;
   (3) Reason for the assessment (specific violation of DOT regulations and violation date);
   (4) Date(s) of the assessment;
   (5) SAP's education and/or treatment recommendation; and
   (6) SAP's telephone number.
(d) The SAP's written report concerning a follow-up evaluation that determines the employee has demonstrated successful compliance must be on the SAP's own letterhead (and not the letterhead of another service agent), signed by the SAP and dated, and must contain the following items:
   (1) Employee's name and SSN;
   (2) Employer's name and address;
   (3) Reason for the initial assessment (specific violation of DOT regulations and violation date);
   (4) Date(s) of the initial assessment and synopsis of the treatment plan;
   (5) Name of practice(s) or service(s) providing the recommended education and/or treatment;
   (6) Inclusive dates of employee's program participation;
   (7) Clinical characterization of employee's program participation;
(8) SAP's clinical determination as to whether the employee has demonstrated successful compliance;
(9) Follow-up testing plan;
(10) Employee's continuing care needs with specific treatment, aftercare, and/or support group services recommendations; and
(11) SAP's telephone number.

(c) The SAP's written report concerning a follow-up evaluation that determines the employee has not demonstrated successful compliance must be on the SAP's own letterhead (and not the letterhead of another service agent), signed by the SAP and dated, and must contain the following items:
   (1) Employee's name and SSN;
   (2) Employer's name and address;
   (3) Reason for the initial assessment (specific DOT violation and date);
   (4) Date(s) of initial assessment and synopsis of treatment plan;
   (5) Name of practice(s) or service(s) providing the recommended education and/or treatment;
   (6) Inclusive dates of employee's program participation;
   (7) Clinical characterization of employee's program participation;
   (8) Date(s) of the first follow-up evaluation;
   (9) Date(s) of any further follow-up evaluation the SAP has scheduled;
   (10) SAP's clinical reasons for determining that the employee has not demonstrated successful compliance; and
   (11) SAP's telephone number.

(f) As a SAP, you must also provide these written reports directly to the employee if the employee has no current employer and to the gaining DOT regulated employer in the event the employee obtains another transportation industry safety-sensitive position.

(g) As a SAP, you are to maintain copies of your reports to employers for 5 years, and your employee clinical records in accordance with Federal, state, and local laws regarding record maintenance, confidentiality, and release of information. You must make these records available, on request, to DOT agency representatives (e.g., inspectors conducting an audit or safety investigation) and representatives of the NTSB in an accident investigation.

(h) As an employer, you must maintain your reports from SAPs for 5 years from the date you received them.

§ 40.313 -- Where is other information on SAP functions and the return-to-duty process found in this regulation?

You can find other information on the role and functions of SAPs in the following sections of this part:

§ 40.3-Definition; § 40.347-Service agent assistance with SAP-required follow-up testing; § 40.355-Transmission of SAP reports; § 40.329(c)-Making SAP reports available to employees on request.
Appendix E to Part 40--SAP Equivalency Requirements for Certification Organizations.

Subpart P--Confidentiality and Release of Information

§ 40.321 -- What is the general confidentiality rule for drug and alcohol test information?
Except as otherwise provided in this subpart, as a service agent or employer participating in the DOT drug or alcohol testing process, you are prohibited from releasing individual test results or medical information about an employee to third parties without the employee's specific written consent.
(a) A "third party" is any person or organization to whom other subparts of this regulation do not explicitly authorize or require the transmission of information in the course of the drug or alcohol testing process.
(b) "Specific written consent" means a statement signed by the employee that he or she agrees to the release of a particular piece of information to a particular, explicitly identified, person or organization at a particular time. "Blanket releases," in which an employee agrees to a release of a category of information (e.g., all test results) or to release information to a category of parties (e.g., other employers who are members of a C/TPA, companies to which the employee may apply for employment), are prohibited under this part.

§ 40.323 -- May program participants release drug or alcohol test information in connection with legal proceedings?
(a) As an employer, you may release information pertaining to an employee's drug or alcohol test without the employee's consent in certain legal proceedings.
(1) These proceedings include a lawsuit (e.g., a wrongful discharge action), grievance (e.g., an arbitration concerning disciplinary action taken by the employer), or administrative proceeding (e.g., an unemployment compensation hearing) brought by, or on behalf of, an employee and resulting from a positive DOT drug or alcohol test or a refusal to test (including, but not limited to, adulterated or substituted test results).
(2) These proceedings also include a criminal or civil action resulting from an employee's performance of safety-sensitive duties, in which a court of competent jurisdiction determines that the drug or alcohol test information sought is relevant to the case and issues an order directing the employer to produce the information. For example, in personal injury litigation following a truck or bus collision, the court could determine that a post-accident drug test result of an employee is relevant to determining whether the driver or the driver's employer was negligent. The employer is authorized to respond to the court's order to produce the records.
(b) In such a proceeding, you may release the information to the decisionmaker in the proceeding (e.g., the court in a lawsuit). You may release the information only with a binding stipulation that the decisionmaker to whom it is released will make it available only to parties to the proceeding.
(c) If you are a service agent, and the employer requests its employee's drug or alcohol testing information from you to use in a legal proceeding as authorized in paragraph (a) of this section (e.g., the laboratory's data package), you must provide the requested information to the employer.
As an employer or service agent, you must immediately notify the employee in writing of any information you release under this section.

§ 40.325 -- [Reserved]

§ 40.327 -- When must the MRO report medical information gathered in the verification process?
(a) As the MRO, you must, except as provided in paragraph (c) of this section, report drug test results and medical information you learned as part of the verification process to third parties without the employee's consent if you determine, in your reasonable medical judgment, that:
   (1) The information is likely to result in the employee being determined to be medically unqualified under an applicable DOT agency regulation; or
   (2) The information indicates that continued performance by the employee of his or her safety-sensitive function is likely to pose a significant safety risk.
(b) The third parties to whom you are authorized to provide information by this section include the employer, a physician or other health care provider responsible for determining the medical qualifications of the employee under an applicable DOT agency safety regulation, a SAP evaluating the employee as part of the return to duty process (see § 40.293(g)), a DOT agency, or the National Transportation Safety Board in the course of an accident investigation.
(c) If the law of a foreign country (e.g., Canada) prohibits you from providing medical information to the employer, you may comply with that prohibition.

§ 40.329 -- What information must laboratories, MROs, and other service agents release to employees?
(a) As an MRO or service agent you must provide, within 10 business days of receiving a written request from an employee, copies of any records pertaining to the employee's use of alcohol and/or drugs, including records of the employee's DOT-mandated drug and/or alcohol tests. You may charge no more than the cost of preparation and reproduction for copies of these records.
(b) As a laboratory, you must provide, within 10 business days of receiving a written request from an employee, and made through the MRO, the records relating to the results of the employee's drug test (i.e., laboratory report and data package). You may charge no more than the cost of preparation and reproduction for copies of these records.
(c) As a SAP, you must make available to an employee, on request, a copy of all SAP reports (see § 40.311).

§ 40.331 -- To what additional parties must employers and service agents release information?
As an employer or service agent you must release information under the following circumstances:
(a) If you receive a specific, written consent from an employee authorizing the release of information about that employee's drug or alcohol tests to an identified person, you must provide the information to the identified person. For example, as an employer, when you receive a written request from a former employee to provide information to a subsequent employer, you must do so. In providing the information, you must comply with the terms of the employee's consent.
(b) If you are an employer, you must, upon request of DOT agency representatives, provide the following:

1. Access to your facilities used for this part and DOT agency drug and alcohol program functions.
2. All written, printed, and computer-based drug and alcohol program records and reports (including copies of name-specific records or reports), files, materials, data, documents/documentation, agreements, contracts, policies, and statements that are required by this part and DOT agency regulations.

(c) If you are a service agent, you must, upon request of DOT agency representatives, provide the following:

1. Access to your facilities used for this part and DOT agency drug and alcohol program functions.
2. All written, printed, and computer-based drug and alcohol program records and reports (including copies of name-specific records or reports), files, materials, data, documents/documentation, agreements, contracts, policies, and statements that are required by this part and DOT agency regulations.

(d) If requested by the National Transportation Safety Board as part of an accident investigation, you must provide information concerning post-accident tests administered after the accident.

(e) If requested by a Federal, state or local safety agency with regulatory authority over you or the employee, you must provide drug and alcohol test records concerning the employee.

(f) Except as otherwise provided in this part, as a laboratory you must not release or provide a specimen or a part of a specimen to a requesting party, without first obtaining written consent from ODAPC. If a party seeks a court order directing you to release a specimen or part of a specimen contrary to any provision of this part, you must take necessary legal steps to contest the issuance of the order (e.g., seek to quash a subpoena, citing the requirements of § 40.13). This part does not require you to disobey a court order, however.

§ 40.333 -- What records must employers keep?
(a) As an employer, you must keep the following records for the following periods of time:

1. You must keep the following records for five years:
   (i) Records of employee alcohol test results indicating an alcohol concentration of 0.02 or greater;
   (ii) Records of employee verified positive drug test results;
   (iii) Documentation of refusals to take required alcohol and/or drug tests (including substituted or adulterated drug test results);
   (iv) SAP reports; and
   (v) All follow-up tests and schedules for follow-up tests.

2. You must keep records for three years of information obtained from previous employers under § 40.25 concerning drug and alcohol test results of employees.
3. You must keep records of the inspection, maintenance, and calibration of EBTs, for two years.
4. You must keep records of negative and cancelled drug test results and alcohol test results with a concentration of less than 0.02 for one year.
(b) You do not have to keep records related to a program requirement that does not apply to you (e.g., a maritime employer who does not have a DOT-mandated random alcohol testing program need not maintain random alcohol testing records).

(c) You must maintain the records in a location with controlled access.

(d) A service agent may maintain these records for you. However, you must ensure that you can produce these records at your principal place of business in the time required by the DOT agency. For example, as a motor carrier, when an FMCSA inspector requests your records, you must ensure that you can provide them within two working days.

Subpart Q--Roles and Responsibilities of Service Agents

§ 40.341 -- Must service agents comply with DOT drug and alcohol testing requirements?

(a) As a service agent, the services you provide to transportation employers must meet the requirements of this part and the DOT agency drug and alcohol testing regulations.

(b) If you do not comply, DOT may take action under the Public Interest Exclusions procedures of this part (see Subpart R of this part) or applicable provisions of other DOT agency regulations.

§ 40.343 -- What tasks may a service agent perform for an employer?

As a service agent, you may perform for employers the tasks needed to comply with DOT agency drug and alcohol testing regulations, subject to the requirements and limitations of this part.

§ 40.345 -- In what circumstances may a C/TPA act as an intermediary in the transmission of drug and alcohol testing information to employers?

(a) As a C/TPA or other service agent, you may act as an intermediary in the transmission of drug and alcohol testing information in the circumstances specified in this section only if the employer chooses to have you do so. Each employer makes the decision about whether to receive some or all of this information from you, acting as an intermediary, rather than directly from the service agent who originates the information (e.g., an MRO or BAT).

(b) The specific provisions of this part concerning which you may act as an intermediary are listed in Appendix F to this part. These are the only situations in which you may act as an intermediary. You are prohibited from doing so in all other situations.

(c) In every case, you must ensure that, in transmitting information to employers, you meet all requirements (e.g., concerning confidentiality and timing) that would apply if the service agent originating the information (e.g., an MRO or collector) sent the information directly to the employer. For example, if you transmit drug testing results from MROs to DERs, you must transmit each drug test result to the DER in compliance with the MRO requirements set forth in § 40.167.
§ 40.347 -- What functions may C/TPAs perform with respect to administering testing?

As a C/TPA, except as otherwise specified in this part, you may perform the following functions for employers concerning random selection and other selections for testing.

(a) You may operate random testing programs for employers and may assist (i.e., through contracting with laboratories or collection sites, conducting collections) employers with other types of testing (e.g., pre-employment, post-accident, reasonable suspicion, return-to-duty, and follow-up).

(b) You may combine employees from more than one employer or one transportation industry in a random pool if permitted by all the DOT agency drug and alcohol testing regulations involved.

   (1) If you combine employees from more than one transportation industry, you must ensure that the random testing rate is at least equal to the highest rate required by each DOT agency.

   (2) Employees not covered by DOT agency regulations may not be part of the same random pool with DOT covered employees.

(c) You may assist employers in ensuring that follow-up testing is conducted in accordance with the plan established by the SAP. However, neither you nor the employer are permitted to randomly select employees from a "follow-up pool" for follow-up testing.

§ 40.349 -- What records may a service agent receive and maintain?

(a) Except where otherwise specified in this part, as a service agent you may receive and maintain all records concerning DOT drug and alcohol testing programs, including positive, negative, and refusal to test individual test results. You do not need the employee's consent to receive and maintain these records.

(b) You may maintain all information needed for operating a drug/alcohol program (e.g., CCFs, ATFs, names of employees in random pools, random selection lists, copies of notices to employers of selected employees) on behalf of an employer.

(c) If a service agent originating drug or alcohol testing information, such as an MRO or BAT, sends the information directly to the DER, he or she may also provide the information simultaneously to you, as a C/TPA or other service agent who maintains this information for the employer.

(d) If you are serving as an intermediary in transmitting information that is required to be provided to the employer, you must ensure that it reaches the employer in the same time periods required elsewhere in this part.

(e) You must ensure that you can make available to the employer within two days any information the employer is asked to produce by a DOT agency representative.

(f) On request of an employer, you must, at any time on the request of an employer, transfer immediately all records pertaining to the employer and its employees to the employer or to any other service agent the employer designates. You must carry out this transfer as soon as the employer requests it. You are not required to obtain employee consent for this transfer. You must not charge more than your reasonable administrative costs for conducting this transfer. You may not charge a fee for the release of these records.

(g) If you are planning to go out of business or your organization will be bought by or merged with another organization, you must immediately notify all employers and
offer to transfer all records pertaining to the employer and its employees to the employer or to any other service agent the employer designates. You must carry out this transfer as soon as the employer requests it. You are not required to obtain employee consent for this transfer. You must not charge more than your reasonable administrative costs for conducting this transfer. You may not charge a fee for the release of these records.

§ 40.351 -- What confidentiality requirements apply to service agents?
Except where otherwise specified in this part, as a service agent the following confidentiality requirements apply to you:

(a) When you receive or maintain confidential information about employees (e.g., individual test results), you must follow the same confidentiality regulations as the employer with respect to the use and release of this information.

(b) You must follow all confidentiality and records retention requirements applicable to employers.

(c) You may not provide individual test results or other confidential information to another employer without a specific, written consent from the employee. For example, suppose you are a C/TPA that has employers X and Y as clients. Employee Jones works for X, and you maintain Jones' drug and alcohol test for X. Jones wants to change jobs and work for Y. You may not inform Y of the result of a test conducted for X without having a specific, written consent from Jones. Likewise, you may not provide this information to employer Z, who is not a C/TPA member, without this consent.

(d) You must not use blanket consent forms authorizing the release of employee testing information.

(e) You must establish adequate confidentiality and security measures to ensure that confidential employee records are not available to unauthorized persons. This includes protecting the physical security of records, access controls, and computer security measures to safeguard confidential data in electronic data bases.

§ 40.353 -- What principles govern the interaction between MROs and other service agents?
As a service agent other than an MRO (e.g., a C/TPA), the following principles govern your interaction with MROs:

(a) You may provide MRO services to employers, directly or through contract, if you meet all applicable provisions of this part.

(b) If you employ or contract for an MRO, the MRO must perform duties independently and confidentiality. When you have a relationship with an MRO, you must structure the relationship to ensure that this independence and confidentiality are not compromised. Specific means (including both physical and operational measures, as appropriate) to separate MRO functions and other service agent functions are essential.

(c) Only your staff who are actually under the day-to-day supervision and control of an MRO with respect to MRO functions may perform these functions. This does not mean that those staff may not perform other functions at other times. However, the designation of your staff to perform MRO functions under MRO supervision must be limited and not used as a subterfuge to circumvent confidentiality and other requirements of this part and DOT agency regulations. You must ensure that MRO staff operate under controls sufficient to ensure that the independence and confidentiality of the MRO process are not compromised.
Like other MROs, an MRO you employ or contract with must personally conduct verification interviews with employees and must personally make all verification decisions. Consequently, your staff cannot perform these functions.

§ 40.355 -- What limitations apply to the activities of service agents?

As a service agent, you are subject to the following limitations concerning your activities in the DOT drug and alcohol testing program.

(a) You must not require an employee to sign a consent, release, waiver of liability, or indemnification agreement with respect to any part of the drug or alcohol testing process covered by this part (including, but not limited to, collections, laboratory testing, MRO, and SAP services).

(b) You must not act as an intermediary in the transmission of drug test results from the laboratory to the MRO. That is, the laboratory may not send results to you, with you in turn sending them to the MRO for verification. For example, a practice in which the laboratory transmits results to your computer system, and you then assign the results to a particular MRO, is not permitted.

(c) You must not transmit drug test results directly from the laboratory to the employer (by electronic or other means) or to a service agent who forwards them to the employer. All confirmed laboratory results must be processed by the MRO before they are released to any other party.

(d) You must not act as an intermediary in the transmission of alcohol test results of 0.02 or higher from the STT or BAT to the DER.

(e) Except as provided in paragraph (f) of this section, you must not act as an intermediary in the transmission of individual SAP reports to the actual employer. That is, the SAP may not send such reports to you, with you in turn sending them to the actual employer. However, you may maintain individual SAP summary reports and follow-up testing plans after they are sent to the DER, and the SAP may transmit such reports to you simultaneously with sending them to the DER.

(f) As an exception to paragraph (e) of this section, you may act as an intermediary in the transmission of SAP report from the SAP to an owner-operator or other self-employed individual.

(g) Except as provided in paragraph (h) of this section, you must not make decisions to test an employee based upon reasonable suspicion, post-accident, return-to-duty, and follow-up determination criteria. These are duties the actual employer cannot delegate to a C/TPA. You may, however, provide advice and information to employers regarding these testing issues and how the employer should schedule required testing.

(h) As an exception to paragraph (g) of this section, you may make decisions to test an employee based upon reasonable suspicion, post-accident, return-to-duty, and follow-up determination criteria with respect to an owner-operator or other self-employed individual.

(i) Except as provided in paragraph (j) of this section, you must not make a determination that an employee has refused a drug or alcohol test. This is a non-delegable duty of the actual employer. You may, however, provide advice and information to employers regarding refusal-to-test issues.

(j) As an exception to paragraph (i) of this section, you may make a determination that an employee has refused a drug or alcohol test, if:
(1) You are authorized by a DOT agency regulation to do so, you schedule a required test for an owner-operator or other self-employed individual, and the individual fails to appear for the test without a legitimate reason; or
(2) As an MRO, you determine that an individual has refused to test on the basis of adulteration or substitution.

(k) You must not act as a DER. For example, while you may be responsible for transmitting information to the employer about test results, you must not act on behalf of the employer in actions to remove employees from safety-sensitive duties.
(l) In transmitting documents to laboratories, you must ensure that you send to the laboratory that conducts testing only the laboratory copy of the CCF. You must not transmit other copies of the CCF or any ATFs to the laboratory.
(m) You must not impose conditions or requirements on employers that DOT regulations do not authorize. For example, as a C/TPA serving employers in the pipeline or motor carrier industry, you must not require employers to have provisions in their DOT plans that RSPA or FMCSA regulations do not require.
(n) You must not intentionally delay the transmission of drug or alcohol testing-related documents concerning actions you have performed, because of a payment dispute or other reasons.

Example 1 to Paragraph (n): A laboratory that has tested a specimen must not delay transmitting the documentation of the test result to an MRO because of a billing or payment dispute with the MRO or a C/TPA.
Example 2 to Paragraph (n): An MRO or SAP who has interviewed an employee must not delay sending a verified test result or SAP report to the employer because of such a dispute with the employer or employee.
Example 3 to Paragraph (n): A collector who has performed a urine specimen collection must not delay sending the drug specimen and CCF to the laboratory because of a payment or other dispute with the laboratory or a C/TPA.
Example 4 to Paragraph (n): A BAT who has conducted an alcohol test must not delay sending test result information to an employer or C/TPA because of a payment or other dispute with the employer or C/TPA.
(o) While you must follow the DOT agency regulations, the actual employer remains accountable to DOT for compliance, and your failure to implement any aspect of the program as required in this part and other applicable DOT agency regulations makes the employer subject to enforcement action by the Department.

Subpart R--Public Interest Exclusions

§ 40.361 -- What is the purpose of a public interest exclusion (PIE)?
(a) To protect the public interest, including protecting transportation employers and employees from serious noncompliance with DOT drug and alcohol testing rules, the Department's policy is to ensure that employers conduct business only with responsible service agents.
(b) The Department therefore uses PIEs to exclude from participation in DOT's drug and alcohol testing program any service agent who, by serious noncompliance with this part or other DOT agency drug and alcohol testing regulations, has shown that it is not currently acting in a responsible manner.
(c) A PIE is a serious action that the Department takes only to protect the public interest. We intend to use PIEs only to remedy situations of serious noncompliance. PIEs are not used for the purpose of punishment.
Nothing in this subpart precludes a DOT agency or the Inspector General from taking other action authorized by its regulations with respect to service agents or employers that violate its regulations.

§ 40.363 -- On what basis may the Department issue a PIE?
(a) If you are a service agent, the Department may issue a PIE concerning you if we determine that you have failed or refused to provide drug or alcohol testing services consistent with the requirements of this part or a DOT agency drug and alcohol regulation.
(b) The Department also may issue a PIE if you have failed to cooperate with DOT agency representatives concerning inspections, complaint investigations, compliance and enforcement reviews, or requests for documents and other information about compliance with this part or DOT agency drug and alcohol regulations.

§ 40.365 -- What is the Department's policy concerning starting a PIE proceeding?
(a) It is the Department's policy to start a PIE proceeding only in cases of serious, uncorrected noncompliance with the provisions of this part, affecting such matters as safety, the outcomes of test results, privacy and confidentiality, due process and fairness for employees, the honesty and integrity of the testing program, and cooperation with or provision of information to DOT agency representatives.
(b) The following are examples of the kinds of serious noncompliance that, as a matter of policy, the Department views as appropriate grounds for starting a PIE proceeding. These examples are not intended to be an exhaustive or exclusive list of the grounds for starting a PIE proceeding. We intend them to illustrate the level of seriousness that the Department believes supports starting a PIE proceeding. The examples follow:

1. For an MRO, verifying tests positive without interviewing the employees as required by this part or providing MRO services without meeting the qualifications for an MRO required by this part;
2. For a laboratory, refusing to provide information to the Department, an employer, or an employee as required by this part; failing or refusing to conduct a validity testing program when required by this part; or a pattern or practice of testing errors that result in the cancellation of tests. (As a general matter of policy, the Department does not intend to initiate a PIE proceeding concerning a laboratory with respect to matters on which HHS initiates certification actions under its laboratory guidelines.);
3. For a collector, a pattern or practice of directly observing collections when doing so is unauthorized, or failing or refusing to directly observe collections when doing so is mandatory;
4. For collectors, BATs, or STTs, a pattern or practice of using forms, testing equipment, or collection kits that do not meet the standards in this part;
5. For a collector, BAT, or STT, a pattern or practice of "fatal flaws" or other significant uncorrected errors in the collection process;
6. For a laboratory, MRO or C/TPA, failing or refusing to report tests results as required by this part or DOT agency regulations;
7. For a laboratory, falsifying, concealing, or destroying documentation concerning any part of the drug testing process, including, but not limited to, documents in a "litigation package";
(8) For SAPs, providing SAP services while not meeting SAP qualifications required by this part or performing evaluations without face-to-face interviews;
(9) For any service agent, maintaining a relationship with another party that constitutes a conflict of interest under this part (e.g., a laboratory that derives a financial benefit from having an employer use a specific MRO);
(10) For any service agent, representing falsely that the service agent or its activities is approved or certified by the Department or a DOT agency;
(11) For any service agent, disclosing an employee's test result information to any party this part or a DOT agency regulation does not authorize, including by obtaining a "blanket" consent from employees or by creating a data base from which employers or others can retrieve an employee's DOT test results without the specific consent of the employee;
(12) For any service agent, interfering or attempting to interfere with the ability of an MRO to communicate with the Department, or retaliating against an MRO for communicating with the Department;
(13) For any service agent, directing or recommending that an employer fail or refuse to implement any provision of this part; or
(14) With respect to noncompliance with a DOT agency regulation, conduct that affects important provisions of Department-wide concern (e.g., failure to properly conduct the selection process for random testing).

§ 40.367 -- Who initiates a PIE proceeding?
The following DOT officials may initiate a PIE proceeding:
(a) The drug and alcohol program manager of a DOT agency;
(b) An official of ODAPC, other than the Director; or
(c) The designee of any of these officials.

§ 40.369 -- What is the discretion of an initiating official in starting a PIE proceeding?
(a) Initiating officials have broad discretion in deciding whether to start a PIE proceeding.
(b) In exercising this discretion, the initiating official must consider the Department's policy regarding the seriousness of the service agent's conduct (see § 40.365) and all information he or she has obtained to this point concerning the facts of the case. The initiating official may also consider the availability of the resources needed to pursue a PIE proceeding.
(c) A decision not to initiate a PIE proceeding does not necessarily mean that the Department regards a service agent as being in compliance or that the Department may not use other applicable remedies in a situation of noncompliance.

§ 40.371 -- On what information does an initiating official rely in deciding whether to start a PIE proceeding?
(a) An initiating official may rely on credible information from any source as the basis for starting a PIE proceeding.
(b) Before sending a correction notice (see § 40.373), the initiating official informally contacts the service agent to determine if there is any information that may affect the initiating official's determination about whether it is necessary to send a correction
notice. The initiating official may take any information resulting from this contact into account in determining whether to proceed under this subpart.

§ 40.373 -- Before starting a PIE proceeding, does the initiating official give the service agent an opportunity to correct problems?
(a) If you are a service agent, the initiating official must send you a correction notice before starting a PIE proceeding.
(b) The correction notice identifies the specific areas in which you must come into compliance in order to avoid being subject to a PIE proceeding.
(c) If you make and document changes needed to come into compliance in the areas listed in the correction notice to the satisfaction of the initiating official within 60 days of the date you receive the notice, the initiating official does not start a PIE proceeding. The initiating official may conduct appropriate fact finding to verify that you have made and maintained satisfactory corrections. When he or she is satisfied that you are in compliance, the initiating official sends you a notice that the matter is concluded.

§ 40.375 -- How does the initiating official start a PIE proceeding?
(a) As a service agent, if your compliance matter is not correctable (see § 40.373(a)), or if have not resolved compliance matters as provided in § 40.373(c), the initiating official starts a PIE proceeding by sending you a notice of proposed exclusion (NOPE). The NOPE contains the initiating official's recommendations concerning the issuance of a PIE, but it is not a decision by the Department to issue a PIE.
(b) The NOPE includes the following information:
   (1) A statement that the initiating official is recommending that the Department issue a PIE concerning you;
   (2) The factual basis for the initiating official's belief that you are not providing drug and/or alcohol testing services to DOT-regulated employers consistent with the requirements of this part or are in serious noncompliance with a DOT agency drug and alcohol regulation;
   (3) The factual basis for the initiating official's belief that your noncompliance has not been or cannot be corrected;
   (4) The initiating official's recommendation for the scope of the PIE;
   (5) The initiating official's recommendation for the duration of the PIE; and
   (6) A statement that you may contest the issuance of the proposed PIE, as provided in § 40.379.
(c) The initiating official sends a copy of the NOPE to the ODAPC Director at the same time he or she sends the NOPE to you.

§ 40.377 -- Who decides whether to issue a PIE?
(a) The ODAPC Director, or his or her designee, decides whether to issue a PIE. If a designee is acting as the decisionmaker, all references in this subpart to the Director refer to the designee.
(b) To ensure his or her impartiality, the Director plays no role in the initiating official's determination about whether to start a PIE proceeding.
(c) There is a "firewall" between the initiating official and the Director. This means that the initiating official and the Director are prohibited from having any discussion, contact, or exchange of information with one another about the matter, except for documents and discussions that are part of the record of the proceeding.
§ 40.379 -- How do you contest the issuance of a PIE?
(a) If you receive a NOPE, you may contest the issuance of the PIE.
(b) If you want to contest the proposed PIE, you must provide the Director information and argument in opposition to the proposed PIE in writing, in person, and/or through a representative. To contest the proposed PIE, you must take one or more of the steps listed in this paragraph (b) within 30 days after you receive the NOPE.
   (1) You may request that the Director dismiss the proposed PIE without further proceedings, on the basis that it does not concern serious noncompliance with this part or DOT agency regulations, consistent with the Department's policy as stated in § 40.365.
   (2) You may present written information and arguments, consistent with the provisions of § 40.381, contesting the proposed PIE.
   (3) You may arrange with the Director for an informal meeting to present your information and arguments.
(c) If you do not take any of the actions listed in paragraph (b) of this section within 30 days after you receive the NOPE, the matter proceeds as an uncontested case. In this event, the Director makes his or her decision based on the record provided by the initiating official (i.e., the NOPE and any supporting information or testimony) and any additional information the Director obtains.

§ 40.381 -- What information do you present to contest the proposed issuance of a PIE?
(a) As a service agent who wants to contest a proposed PIE, you must present at least the following information to the Director:
   (1) Specific facts that contradict the statements contained in the NOPE (see § 40.375(b)(2) and (3)). A general denial is insufficient to raise a genuine dispute over facts material to the issuance of a PIE;
   (2) Identification of any existing, proposed or prior PIE; and
   (3) Identification of your affiliates, if any.
(b) You may provide any information and arguments you wish concerning the proposed issuance, scope and duration of the PIE (see § 40.375(b)(4) and (5)).
(c) You may provide any additional relevant information or arguments concerning any of the issues in the matter.

§ 40.383 -- What procedures apply if you contest the issuance of a PIE?
(a) DOT conducts PIE proceedings in a fair and informal manner. The Director may use flexible procedures to allow you to present matters in opposition. The Director is not required to follow formal rules of evidence or procedure in creating the record of the proceeding.
(b) The Director will consider any information or argument he or she determines to be relevant to the decision on the matter.
(c) You may submit any documentary evidence you want the Director to consider. In addition, if you have arranged an informal meeting with the Director, you may present witnesses and confront any person the initiating official presents as a witness against you.
(d) In cases where there are material factual issues in dispute, the Director or his or her designee may conduct additional fact-finding.
(e) If you have arranged a meeting with the Director, the Director will make a transcribed record of the meeting available to you on your request. You must pay the cost of transcribing and copying the meeting record.
§ 40.385 -- Who bears the burden of proof in a PIE proceeding?
(a) As the proponent of issuing a PIE, the initiating official bears the burden of proof.
(b) This burden is to demonstrate, by a preponderance of the evidence, that the service agent was in serious noncompliance with the requirements of this part for drug and/or alcohol testing-related services or with the requirements of another DOT agency drug and alcohol testing regulation.

§ 40.387 -- What matters does the Director decide concerning a proposed PIE?
(a) Following the service agent's response (see § 40.379(b)) or, if no response is received, after 30 days have passed from the date on which the service agent received the NOPE, the Director may take one of the following steps:
   (1) In response to a request from the service agent (see § 40.379(b)(1)) or on his or her own motion, the Director may dismiss a PIE proceeding if he or she determines that it does not concern serious noncompliance with this part or DOT agency regulations, consistent with the Department's policy as stated in § 40.365.
      (i) If the Director dismisses a proposed PIE under this paragraph (a), the action is closed with respect to the noncompliance alleged in the NOPE.
      (ii) The Department may initiate a new PIE proceeding against you on the basis of different or subsequent conduct that is in noncompliance with this part or other DOT drug and alcohol testing rules.
   (2) If the Director determines that the initiating official's submission does not have complete information needed for a decision, the Director may remand the matter to the initiating official. The initiating official may resubmit the matter to the Director when the needed information is complete. If the basis for the proposed PIE has changed, the initiating official must send an amended NOPE to the service agent.
(b) The Director makes determinations concerning the following matters in any PIE proceeding that he or she decides on the merits:
   (1) Any material facts that are in dispute;
   (2) Whether the facts support issuing a PIE;
   (3) The scope of any PIE that is issued; and
   (4) The duration of any PIE that is issued.

§ 40.389 -- What factors may the Director consider?
This section lists examples of the kind of mitigating and aggravating factors that the Director may consider in determining whether to issue a PIE concerning you, as well as the scope and duration of a PIE. This list is not exhaustive or exclusive. The Director may consider other factors if appropriate in the circumstances of a particular case. The list of examples follows:
(a) The actual or potential harm that results or may result from your noncompliance;
(b) The frequency of incidents and/or duration of the noncompliance;
(c) Whether there is a pattern or prior history of noncompliance;
(d) Whether the noncompliance was pervasive within your organization, including such factors as the following:
   (1) Whether and to what extent your organization planned, initiated, or carried out the noncompliance;
   (2) The positions held by individuals involved in the noncompliance, and whether your principals tolerated their noncompliance; and
Whether you had effective standards of conduct and control systems (both with respect to your own organization and any contractors or affiliates) at the time the noncompliance occurred;

(e) Whether you have demonstrated an appropriate compliance disposition, including such factors as the following:
   (1) Whether you have accepted responsibility for the noncompliance and recognize the seriousness of the conduct that led to the cause for issuance of the PIE;
   (2) Whether you have cooperated fully with the Department during the investigation. The Director may consider when the cooperation began and whether you disclosed all pertinent information known to you;
   (3) Whether you have fully investigated the circumstances of the noncompliance forming the basis for the PIE and, if so, have made the result of the investigation available to the Director;
   (4) Whether you have taken appropriate disciplinary action against the individuals responsible for the activity that constitutes the grounds for issuance of the PIE; and
   (5) Whether your organization has taken appropriate corrective actions or remedial measures, including implementing actions to prevent recurrence;
(f) With respect to noncompliance with a DOT agency regulation, the degree to which the noncompliance affects matters common to the DOT drug and alcohol testing program;
(g) Other factors appropriate to the circumstances of the case.

§ 40.391 -- What is the scope of a PIE?
(a) The scope of a PIE is the Department's determination about the divisions, organizational elements, types of services, affiliates, and/or individuals (including direct employees of a service agent and its contractors) to which a PIE applies.
(b) If, as a service agent, the Department issues a PIE concerning you, the PIE applies to all your divisions, organizational elements, and types of services that are involved with or affected by the noncompliance that forms the factual basis for issuing the PIE.
(c) In the NOPE (see § 40.375(b)(4)), the initiating official sets forth his or her recommendation for the scope of the PIE. The proposed scope of the PIE is one of the elements of the proceeding that the service agent may contest (see § 40.381(b)) and about which the Director makes a decision (see § 40.387(b)(3)).
(d) In recommending and deciding the scope of the PIE, the initiating official and Director, respectively, must take into account the provisions of paragraphs (e) through (j) of this section.
(e) The pervasiveness of the noncompliance within a service agent's organization (see § 40.389(d)) is an important consideration in determining the scope of a PIE. The appropriate scope of a PIE grows broader as the pervasiveness of the noncompliance increases.
(f) The application of a PIE is not limited to the specific location or employer at which the conduct that forms the factual basis for issuing the PIE was discovered.
(g) A PIE applies to your affiliates, if the affiliate is involved with or affected by the conduct that forms the factual basis for issuing the PIE.
(h) A PIE applies to individuals who are officers, employees, directors, shareholders, partners, or other individuals associated with your organization in the following circumstances:
(1) Conduct forming any part of the factual basis of the PIE occurred in connection with the individual's performance of duties by or on behalf of your organization; or

(2) The individual knew of, had reason to know of, approved, or acquiesced in such conduct. The individual's acceptance of benefits derived from such conduct is evidence of such knowledge, acquiescence, or approval.

(i) If a contractor to your organization is solely responsible for the conduct that forms the factual basis for a PIE, the PIE does not apply to the service agent itself unless the service agent knew or should have known about the conduct and did not take action to correct it.

(j) PIEs do not apply to drug and alcohol testing that DOT does not regulate.

(k) The following examples illustrate how the Department intends the provisions of this section to work:

Example 1 to § 40.391. Service Agent P provides a variety of drug testing services. P's SAP services are involved in a serious violation of this Part 40. However, P's other services fully comply with this part, and P's overall management did not plan or concur in the noncompliance, which in fact was contrary to P's articulated standards. Because the noncompliance was isolated in one area of the organization's activities, and did not pervade the entire organization, the scope of the PIE could be limited to SAP services.

Example 2 to § 40.391. Service Agent Q provides a similar variety of services. The conduct forming the factual basis for a PIE concerns collections for a transit authority. As in Example 1, the noncompliance is not pervasive throughout Q's organization. The PIE would apply to collections at all locations served by Q, not just the particular transit authority or not just in the state in which the transit authority is located.

Example 3 to § 40.391. Service Agent R provides a similar array of services. One or more of the following problems exists: R's activities in several areas—collections, MROs, SAPs, protecting the confidentiality of information—are involved in serious noncompliance; DOT determines that R's management knew or should have known about serious noncompliance in one or more areas, but management did not take timely corrective action; or, in response to an inquiry from DOT personnel, R's management refuses to provide information about its operations. In each of these three cases, the scope of the PIE would include all aspects of R's services.

Example 4 to § 40.391. Service Agent W provides only one kind of service (e.g., laboratory or MRO services). The Department issues a PIE concerning these services. Because W only provides this one kind of service, the PIE necessarily applies to all its operations.

Example 5 to § 40.391. Service Agent X, by exercising reasonably prudent oversight of its collection contractor, should have known that the contractor was making numerous "fatal flaws" in tests. Alternatively, X received a correction notice pointing out these problems in its contractor's collections. In neither case did X take action to correct the problem. X, as well as the contractor, would be subject to a PIE with respect to collections.

Example 6 to § 40.391. Service Agent Y could not reasonably have known that one of its MROs was regularly failing to interview employees before verifying tests positive. When it received a correction notice, Y immediately dismissed the erring MRO. In this case, the MRO would be subject to a PIE but Y would not.

Example 7 to § 40.391. The Department issues a PIE with respect to Service Agent Z. Z provides services for DOT-regulated transportation employers, a Federal agency under
the HHS-regulated Federal employee testing program, and various private businesses and public agencies that DOT does not regulate. The PIE applies only to the DOT-regulated transportation employers with respect to their DOT-mandated testing, not to the Federal agency or the other public agencies and private businesses. The PIE does not prevent the non-DOT regulated entities from continuing to use Z's services.

§ 40.393 -- How long does a PIE stay in effect?
(a) In the NOPE (see § 40.375(b)(5)), the initiating official proposes the duration of the PIE. The duration of the PIE is one of the elements of the proceeding that the service agent may contest (see § 40.381(b)) and about which the Director makes a decision (see § 40.387(b)(4)).
(b) In deciding upon the duration of the PIE, the Director considers the seriousness of the conduct on which the PIE is based and the continued need to protect employers and employees from the service agent's noncompliance. The Director considers factors such as those listed in § 40.389 in making this decision.
(c) The duration of a PIE will be between one and five years, unless the Director reduces its duration under § 40.407.

§ 40.395 -- Can you settle a PIE proceeding?
At any time before the Director's decision, you and the initiating official can, with the Director's concurrence, settle a PIE proceeding.

§ 40.397 -- When does the Director make a PIE decision?
The Director makes his or her decision within 60 days of the date when the record of a PIE proceeding is complete (including any meeting with the Director and any additional fact-finding that is necessary). The Director may extend this period for good cause for additional periods of up to 30 days.

§ 40.399 -- How does the Department notify service agents of its decision?
If you are a service agent involved in a PIE proceeding, the Director provides you written notice as soon as he or she makes a PIE decision. The notice includes the following elements:
(a) If the decision is not to issue a PIE, a statement of the reasons for the decision, including findings of fact with respect to any material factual issues that were in dispute.
(b) If the decision is to issue a PIE-
   (1) A reference to the NOPE;
   (2) A statement of the reasons for the decision, including findings of fact with respect to any material factual issues that were in dispute;
   (3) A statement of the scope of the PIE; and
   (4) A statement of the duration of the PIE.

§ 40.401 -- How does the Department notify employers and the public about a PIE?
(a) The Department maintains a document called the "List of Excluded Drug and Alcohol Service Agents." This document may be found on the Department's web site (http://www.dot.gov/ost/dapc). You may also request a copy of the document from ODAPC.
(b) When the Director issues a PIE, he or she adds to the List the name and address of the service agent, and any other persons or organizations, to whom the PIE applies and information about the scope and duration of the PIE.
(c) When a service agent ceases to be subject to a PIE, the Director removes this
information from the List.
(d) The Department also publishes a Federal Register notice to inform the public on
any occasion on which a service agent is added to or taken off the List.

§ 40.403 -- Must a service agent notify its clients when the Department issues a PIE?
(a) As a service agent, if the Department issues a PIE concerning you, you must
notify each of your DOT-regulated employer clients, in writing, about the issuance,
scope, duration, and effect of the PIE. You may meet this requirement by sending a copy
of the Director's PIE decision or by a separate notice. You must send this notice to each
client within three working days of receiving from the Department the notice provided
for in § 40.399(b).
(b) As part of the notice you send under paragraph (a) of this section, you must offer
to transfer immediately all records pertaining to the employer and its employees to the
employer or to any other service agent the employer designates. You must carry out this
transfer as soon as the employer requests it.

§ 40.405 -- May the Federal courts review PIE decisions?
The Director's decision is a final administrative action of the Department. Like all
final administrative actions of Federal agencies, the Director's decision is subject to
judicial review under the Administrative Procedure Act (5 U.S.C. 551 et. seq).

§ 40.407 -- May a service agent ask to have a PIE reduced or terminated?
(a) Yes, as a service agent concerning whom the Department has issued a PIE, you
may request that the Director terminate a PIE or reduce its duration and/or scope. This
process is limited to the issues of duration and scope. It is not an appeal or
reconsideration of the decision to issue the PIE.
(b) Your request must be in writing and supported with documentation.
(c) You must wait at least nine months from the date on which the Director issued the
PIE to make this request.
(d) The initiating official who was the proponent of the PIE may provide information
and arguments concerning your request to the Director.
(e) If the Director verifies that the sources of your noncompliance have been
eliminated and that all drug or alcohol testing-related services you would provide to
DOT-regulated employers will be consistent with the requirements of this part, the
Director may issue a notice terminating or reducing the PIE.

§ 40.409 -- What does the issuance of a PIE mean to transportation employers?
(a) As an employer, you are deemed to have notice of the issuance of a PIE when it
appears on the List mentioned in § 40.401(a) or the notice of the PIE appears in the
Federal Register as provided in § 40.401(d). You should check this List to ensure that
any service agents you are using or planning to use are not subject to a PIE.
(b) As an employer who is using a service agent concerning whom a PIE is issued,
you must stop using the services of the service agent no later than 90 days after the
Department has published the decision in the Federal Register or posted it on its web site.
You may apply to the ODAPC Director for an extension of 30 days if you demonstrate
that you cannot find a substitute service agent within 90 days.
(c) Except during the period provided in paragraph (b) of this section, you must not, as an employer, use the services of a service agent that are covered by a PIE that the Director has issued under this subpart. If you do so, you are in violation of the Department's regulations and subject to applicable DOT agency sanctions (e.g., civil penalties, withholding of Federal financial assistance).
(d) You also must not obtain drug or alcohol testing services through a contractor or affiliate of the service agent to whom the PIE applies.
*Example to Paragraph (d)*: Service Agent R was subject to a PIE with respect to SAP services. As an employer, not only must you not use R's own SAP services, but you also must not use SAP services you arrange through R, such as services provided by a subcontractor or affiliate of R or a person or organization that receives financial gain from its relationship with R.
(e) This section's prohibition on using the services of a service agent concerning which the Director has issued a PIE applies to employers in all industries subject to DOT drug and alcohol testing regulations.
*Example to Paragraph (e)*: The initiating official for a PIE was the FAA drug and alcohol program manager, and the conduct forming the basis of the PIE pertained to the aviation industry. As a motor carrier, transit authority, pipeline, railroad, or maritime employer, you are also prohibited from using the services of the service agent involved in connection with the DOT drug and alcohol testing program.
(f) The issuance of a PIE does not result in the cancellation of drug or alcohol tests conducted using the service agent involved before the issuance of the Director's decision or up to 90 days following its publication in the Federal Register or posting on the Department's web site, unless otherwise specified in the Director's PIE decision or the Director grants an extension as provided in paragraph (b) of this section.
*Example to Paragraph (f)*: The Department issues a PIE concerning Service Agent N on September 1. All tests conducted using N's services before September 1, and through November 30, are valid for all purposes under DOT drug and alcohol testing regulations, assuming they meet all other regulatory requirements.

§ 40.411 -- What is the role of the DOT Inspector General's office?
(a) Any person may bring concerns about waste, fraud, or abuse on the part of a service agent to the attention of the DOT Office of Inspector General.
(b) In appropriate cases, the Office of Inspector General may pursue criminal or civil remedies against a service agent.
(c) The Office of Inspector General may provide factual information to other DOT officials for use in a PIE proceeding.

§ 40.413 -- How are notices sent to service agents?
(a) If you are a service agent, DOT sends notices to you, including correction notices, notices of proposed exclusion, decision notices, and other notices, in any of the ways mentioned in paragraph (b) or (c) of this section.
(b) DOT may send a notice to you, your identified counsel, your agent for service of process, or any of your partners, officers, directors, owners, or joint venturers to the last known street address, fax number, or e-mail address. DOT deems the notice to have been received by you if sent to any of these persons.
(c) DOT considers notices to be received by you-
(1) When delivered, if DOT mails the notice to the last known street address, or five days after we send it if the letter is undeliverable;
(2) When sent, if DOT sends the notice by fax or five days after we send it if the fax is undeliverable; or
(3) When delivered, if DOT sends the notice by e-mail or five days after DOT sends it if the e-mail is undeliverable.

The initial and confirmation cutoff levels for all testing except post accident tests are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Initial Test Cutoff Level (NG/ML)</th>
<th>Confirmation Test Cutoff Level (NG/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana metabolites</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>Cocaine metabolites</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>Opiate metabolites</td>
<td>2000</td>
<td>Morphine 2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Codeine 2000</td>
</tr>
<tr>
<td>Phenocyclidine (PCP)</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>1000</td>
<td>Amphetamine 200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Methamphetamine 200</td>
</tr>
</tbody>
</table>

The cut off levels for post accident testing are different as shown below:

The following summarizes the procedure for analysis of blood and urine specimens submitted under the FRA post-accident program:

This information in italics is not published in the Federal regulations. Rather, FRA has set these levels with the designated laboratory for post accident tests. Informational sheets displaying these cutoffs are included with all test results.

**Urine Integrity Test:** Urine is tested for pH, specific gravity, and/or creatinine. If the pH or temperature is out of range, specific gravity is less then 1.003 and/or creatinine less than 20 mg/dL, or the sample appears adulterated, both the urine and the blood specimen may be tested for drugs.

**Analysis of Drugs/Initial Testing:** Initial testing is performed on urine by KIMS( kinetic interaction of microparticles in solution), or blood if urine is not available, by radioimmunoassay for the drug groups shown. If the tests are negative (that is, the results are below the cutoff), routinely no further analysis is performed.

<table>
<thead>
<tr>
<th>Drug or Metabolite</th>
<th>Initial Tests Cutoffs(ng/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urine</td>
</tr>
<tr>
<td>Cannabinoids</td>
<td>20</td>
</tr>
<tr>
<td>Cocaine</td>
<td>300</td>
</tr>
<tr>
<td>Opiates</td>
<td>300</td>
</tr>
<tr>
<td>Amphetamines/Metamphetamine</td>
<td>300</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>25</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>200</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>100</td>
</tr>
</tbody>
</table>
Analysis of Other Drugs/Confirmation: If the initial test is presumptively positive, the urine and/or the blood specimens are analyzed using gas chromatography-mass spectrometry. Except as noted, only confirmed positive findings are reported; they are reported as quantitative results based on the confirmatory analysis.

<table>
<thead>
<tr>
<th>Specific Drug or Metabolite</th>
<th>Confirmation Test Cutoffs (ng/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Urine</strong></td>
</tr>
<tr>
<td><strong>Cannabinoids</strong></td>
<td></td>
</tr>
<tr>
<td>Delta-9-THC</td>
<td></td>
</tr>
<tr>
<td>Tetrahydrocannabinol (THC)</td>
<td>--</td>
</tr>
<tr>
<td>THCA (a metabolite of THC)</td>
<td>15</td>
</tr>
<tr>
<td><strong>Cocaine</strong></td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td>50</td>
</tr>
<tr>
<td>Benzoylcegonine (metabolite of cocaine)</td>
<td>150</td>
</tr>
<tr>
<td><strong>Opiates</strong></td>
<td></td>
</tr>
<tr>
<td>Morphine (total)</td>
<td>300</td>
</tr>
<tr>
<td>Morphine (unconjugated)</td>
<td>--</td>
</tr>
<tr>
<td>Codeine (total)</td>
<td>300</td>
</tr>
<tr>
<td>Codeine (unconjugated)</td>
<td>--</td>
</tr>
<tr>
<td>6-MonoAcetylmorphine</td>
<td>LOQ11</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>25</td>
</tr>
<tr>
<td><strong>Amphetamines</strong></td>
<td></td>
</tr>
<tr>
<td>Amphetamine</td>
<td>100</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>100</td>
</tr>
<tr>
<td><strong>Barbiturates</strong></td>
<td></td>
</tr>
<tr>
<td>Pentobarbital</td>
<td>200</td>
</tr>
<tr>
<td>Secobarbital</td>
<td>200</td>
</tr>
<tr>
<td>Amobarbital</td>
<td>200</td>
</tr>
<tr>
<td>Butalbital</td>
<td>200</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>1000</td>
</tr>
<tr>
<td><strong>Benzodiazepines</strong></td>
<td></td>
</tr>
<tr>
<td>Nordiazepam</td>
<td>LOQd/</td>
</tr>
<tr>
<td>Oxazepam</td>
<td>LOQ</td>
</tr>
<tr>
<td>Temazepam</td>
<td>LOQ</td>
</tr>
<tr>
<td>N-Desalkylflurazepam</td>
<td>LOQ</td>
</tr>
</tbody>
</table>

**a.** Metabolites and/or analogs of these compounds may also be detected.

**b.** These methods and cutoffs are subject to periodic review and update.

**c.** THC is the active constituent of marijuana or hashish preparations.

11 Limit of quantitation
Urine benzodiazepine concentrations are reported if above the LOQ and only if the concentrations are above the cutoff. If a blood specimen is not received and the urine benzodiazepine concentration is greater than the LOQ, the urine specimen may be reported.

Note: If a drug included in a drug group is detected below the cutoff and another drug in that group is present above the cutoff, the first drug may be reported.

**Analysis of Alcohol:** The blood specimen (or urine if no blood is available) is analyzed for ethyl alcohol by gas chromatography. If the blood specimen is positive, the analysis is repeated using a separate portion of the specimen and the urine is also analyzed by gas chromatography.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Initial Test Cutoff (g/100mL)</th>
<th>Confirmation Cutoff (g/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl alcohol</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Analysis in the case of a fatality:** If urine or blood is not available, or as directed by the FRA, other body fluids and/or tissue may be analyzed.

**Special Assays:** On direction from the FRA, the designated laboratory may perform tests for additional controlled substances and/or metabolites. If such tests are performed, they are specifically described on each individual report.

d. LOQ: Limit of quantitation.
e. A confirmed urine positive for amphetamine or metamphetamine will result in a d & l isomer analysis and is reported as the % of each isomer present.
CERTIFICATION OF LOCOMOTIVE ENGINEERS

I. STATUTE
In 1988 Congress required the Secretary to establish a program for licensing or certification of any operator of a locomotive.

The program shall provide the following:
1. Approval of each railroad's qualification standards.
2. Minimum training requirements.
3. The employee shall have a comprehensive knowledge of the railroad operating practices.
(ii) It shall require consideration of the employee's driving record including: (a) whether his or her driver's license has been denied for cause within the previous 5 years, (b) whether within the previous 5 years the license has been canceled, revoked or suspended, and (c) whether within the previous 5 years the employee has been convicted of an offense described in the National Driver Register Act of 1982 (i.e. driving under the influence).
5. The individual seeking a license or certification (a) shall require the motor vehicle department of the state in which he or she lives to provide the driving record of the said employee to the employer or the Secretary for the previous 5 years; (b) shall request that the information in the National Driver Register Act be transmitted to the employer or the Secretary of Transportation. The information shall be made available to the employee who may comment in writing as to the mitigating circumstances surrounding the driving record.
6. The Secretary may disqualify the employee based solely on his or her driving record. However, the Secretary may waive the requirements if the Secretary determines that the employee is not unfit. The secretary cannot grant a waiver if there has been a conviction, cancellation, revocation or suspension, and the employee has not completed a rehabilitation program.
7. If the employee is denied a license or certification, he or she is entitled to an administrative hearing as permitted under the Federal Railroad Safety Act (i.e. the right to an oral hearing).
8. No employee shall be denied a license where he or she was convicted for alcohol or a controlled substance if such person completed a rehabilitation program established by the railroad or approved by the Secretary.
9. There can be no access to the National Driver Registry which was entered more than 3 years before the request, unless revocations or cancellations are still in effect against the employee. There is no requirement that an employee must have or obtain a driver's license.

II. SUMMARY OF FRA’s RULE ON LOCOMOTIVE ENGINEER CERTIFICATION

Classes Of Engineers

For the purposes of this rule, operation of a locomotive would be divided into two distinct classifications or types of service. The types are: train service engineers who
would have the knowledge and skill to operate any train under all conditions; and locomotive servicing engineers who would have the capacity to operate locomotives without cars attached.

**Categories That Must Be Examined**

Under FRA's system, railroads themselves would issue the certificates and could not require or permit anyone to operate a locomotive unless that person held the proper certificate. Although railroads will be free to have more stringent criteria, FRA's rule will require railroads, as a minimum, to make four determinations concerning anyone being authorized to operate a locomotive. Prior to issuing a certificate, each railroad must determine that the prospective operator:

1. has the necessary visual and hearing acuity to perform such service;
2. has the necessary knowledge, as demonstrated by passage of a written examination;
3. has the necessary skills to operate a locomotive or train, as demonstrated by passage of a performance skills test; and
4. is eligible to become an operator, as demonstrated by a review of the person's prior record of conduct as a railroad employee and as a motor vehicle operator.

**1. Vision and Hearing**

In making a determination concerning a person's vision and hearing a railroad will have to review a competent medical evaluation of the individual's acuity levels. If warranted by the person's physical condition, the operator will be required to use appropriate corrective devices while on-duty.

**2. Knowledge**

In making a determination concerning the person's knowledge a railroad will have to administer a written examination covering the appropriate rules and safety practices of that railroad. Initially, railroads will have considerable discretion in developing these tests until time permits greater standardization of such test. To improve operator competency, FRA requires supplemental training triggered either by the passage of time or significant changes in operations.

**3. Performance Skills**

   **a. Monitoring**

   In making a determination about the person's performance skills a railroad will have to administer a skills test either by monitoring the person's computer simulated operation of a train or by monitoring actual operation of a test train. In addition, railroads will have data concerning the person's operational monitoring program. That monitoring program will require annual evaluations of an operator's skills during routine operations.
b. Training

As alternative to such testing at initial certification, a railroad can rely on fact that person has successfully completed a training program appropriate for the type of operations he or she will perform. Standards for the training of future locomotive engineers also are included in this rule. Railroads that elect to conduct such training programs will obtain approval of their overall program. Students will be authorized to operate locomotives and trains when supervised by instructors.

4. Motor Vehicle History

In making determinations about the person's eligibility to be an engineer railroads will have to consider, where pertinent history exists, the individual's recent (previous 3-5 years) conduct as a railroad employee and as a motor vehicle operator. Such considerations are limited to evaluating instances where the operator candidate voluntarily has created such a behavioral history. A system is provided for evaluating the significance, for the purposes of this rule, of instances in which the person had been involved with alcohol or drugs either while on duty as a railroad employee or while operating a motor vehicle.

5. Substance Abuse

Any single incident of substance abuse would trigger an evaluation by a skilled professional (e.g., medical review officers and Employee Assistance Program (EAP) counselors) of the significance to be attached to such an event. Both railroad employment incidents and motor vehicle driving incidents involving substance abuse would generate this response. The professional would have to consider whether the person is currently dependent on alcohol or drugs or has a treatable disorder involving abuse of alcohol or drugs as a manifestation. If the professionals conclude that such a condition exists, railroads could permit the person to perform service subject to the aftercare and testing provisions contained in FRA's alcohol and drug rules after sufficient intervention has occurred.

Certification candidates would have the responsibility for furnishing the data concerning driving history. They would have to query the relevant state agencies and the National Driver's Register and make the results available to the railroad.

6. Revocation

a. Substance Abuse

Mandatory revocation of the certificate is prescribed for multiple instances of work related detection of substance abuse, regardless of how detected. The period of revocation varies based on the manner of detection. A mandatory nine month revocation would be imposed if the event giving rise to the evaluation was the result of on the job possession, use, or impairment involving alcohol or a controlled substance.

Refusal to submit to chemical testing would be rated as the same as if the test were positive. Whenever a certificate is revoked, completion of the requisite time period and an EAP evaluation showing no current controlled substance abuse disorder are predicates for recertification.
b. Motor Vehicle History

FRA's rule provides a system for evaluating a variety of instances in which the person operated a train unsafely, including the matter of or motor vehicle driving safety.

c. Instances of Poor Safety Performance

Multiple types of incidents of poor safety performance while at the controls of a train will be considered under this evaluation system. For example, operating without proper authority, excessive speeding, and tampering with safety devices would be among the types of unsafe behavior that would result in revocation of certification. In each of the five specific types of events identified by FRA, the incident involves a very dangerous situation in which it is appropriate to hold a locomotive engineer directly responsible for his or her conduct.

Mandatory periods of revocation are provided for single incidents and for multiple incidents of poor train operation that may occur in any three to five year interval. The severity of the response contains gradations to deter repeat offenders. Candidates would be given an opportunity to review any comment on any adverse train operation data before a railroad considered it.

7. Certificate

Railroads will issue engineers deemed qualified a certificate documenting their status and engineers must have that certificate in their possession while on duty. Certificates would have to be renewed at 36-month intervals after again making the four determinations identified above.

8. Failure to Certify

Review of a railroad's decision not to certify would be performed by FRA. Initial review would be simple and prompt. Those dissatisfied with the initial review could request a formal, trial-type hearing procedure for further review. Hearing officer decisions could be appealed to the FRA Administrator before becoming administratively final.

9. Monitoring

Periodic monitoring of locomotive engineer safety performance will be required. Both over and covert periodic monitoring is required as well as a formal annual evaluation of the effectiveness of the safety performance of a railroad's corps of locomotive engineers.

10. Penalties and Disqualification

FRA also is making certain locomotive engineer actions, such as excessive speeding, that are not currently proscribed by specific regulation, unlawful under the provisions of this rule. This will enable FRA to independently respond, through the use of its civil penalty and disqualification procedures, to instances of unlawful behavior by certified locomotive engineers.
III. SECTION BY SECTION SUMMARY OF FRA REGULATIONS

As the result of the statute the Secretary has issued the following regulations: 12/

Subpart A — General

49 C.F.R. § 240.1 -- Purpose and Scope

This part prescribes minimum Federal safety requirements for the eligibility, training, testing, certification, and monitoring of all locomotive engineers. It covers any person who operates a locomotive. It does not restrict a railroad from implementing additional or more stringent requirements that are not inconsistent with this part.

§ 240.3 -- Applicability

(a) This part applies to all railroads, including contractors, that operate locomotives on standard gage track that is part of the general railroad system of transportation, except:

(1) rapid transit operations in an urban area that are not connected with the general system of transportation; and
(2) a railroad that operates only on track inside an installation which is not part of the general railroad system of transportation.

§ 240.5 -- Construction

These regulations preempt any State law, rule, regulation, order, or standard covering the same subject matter in accordance with the Federal Railroad Safety Act.

(b) They do not preempt an additional or more stringent state law necessary to reduce local safety hazards that is not incompatible with Federal law and does not impose unreasonable burden on interstate commerce.

(c) They do not preempt any State criminal law that imposes sanctions for reckless conduct that leads to actual loss of life, injury, or damage to property.

(d) They do not preempt or otherwise alter collective bargaining agreements that employ other job classification titles to identify operators of locomotives.

(e) They do not preempt or otherwise alter the authority of a railroad to initiate disciplinary sanctions against its employees, including managers and supervisors.

12/ Because of the complexity of the regulations, the specific section number is identified. Some of the subsections are not summarized and therefore one should look at the actual regulations for specific details.
Nothing in this part shall be construed to create or prohibit an eligibility or entitlement to employment in other service for the railroad as a result of denial, suspension, or revocation of certification under this part.

§ 240.7 Definitions

This contains definitions for the following words:
"Alcohol"
"Controlled Substance"
"Current Employee"
"Designated Supervisor of Locomotive Engineers"
“Dual Purpose Vehicle”
"Drug"
"EAP Counselor"
“Exclusive Track Occupancy”
"Filing"
"FRA Representative"
"Instructor Engineer"
"Joint Operations"
"Knowingly"
"Locomotive"
"Locomotive Engineer" means any person who moves a locomotive or group of locomotives, regardless of whether they are coupled to other rolling equipment except:

1. a person who moves a locomotive or group of locomotives within the confines of a locomotive repair servicing area as provided for in 49 C.F.R. 218.5 (f) and 218.29 (a)(1); or

2. a person who moves a locomotive or group of locomotives for distances of less than 100 feet and this incidental movement of a locomotive or locomotives is for inspection or maintenance purposes.

"Maxi Track" means a track upon which the operation of trains is governed by one or more of the following methods of operation: timetable; mandatory directive; signal indication; or any form of absolute or block system.

"Medical Examiner"
"Newly Hired Employee"
“Person” means a railroad, a manager, supervisor, official, or other employee or agent of a railroad, any owner, manufacturer, lessor, or lessee of railroad equipment, track or facilities, any independent contractor providing goods or services to a railroad, and any employee of such owner, manufacturer, lessor, lessee, or independent contractor.

“Qualified”
"Railroad Office"
“Railroad” means all forms of non-highway ground transportation that runs on rail or electromagnetic guideways, including commuter service and high speed ground transportation systems, without regard to whether those systems use new technology not associated with traditional railroads. It does not include rapid transit operations. That are not connected to the general railroad system.
"Segment"
“Service”
“Specialized Roadway Maintenance Equipment”
"Substance abuse disorder"

"Type I Simulator" means a replica of the control compartment of a locomotive with all
associated control equipment that:

(1) functions in response to a person's manipulation and causes the gauges
associated with such controls to appropriately respond to the consequences of that
manipulation;

(2) pictorially, audibly and graphically illustrates the route to be taken;

(3) graphically, audibly, and physically illustrates the consequences of control
manipulations in terms of their effect on train speed, braking capacity, and in-train force
levels throughout the train; and

(4) is computer enhanced so that it can be programmed for specific train
consists and the known physical characteristics of the line illustrated.

"Type II Simulator" is similar to a Type I Simulator, except that it does not physically
illustrate the consequences of control manipulations.

"Type III Simulator" is similar to Type I and Type II Simulators, except that it only
graphically illustrates the route to be taken and graphically illustrates the consequences of
control manipulations.

§ 240.9-- Waivers

This provides for the same waiver procedures as under the FRA's general waiver
requirements.

§ 240.11-- Penalties & Consequences for Noncompliance

(a) Any person who violates this part or causes the violation of any such requirement
is subject to a civil penalty of at least $500, but not more than $11,000 per violation,
except that: penalties may be assessed against individuals only for willful violations,
and, where a grossly negligent violation or a pattern of repeated violations has created an
imminent hazard of death or injury to persons, or has caused death or injury, a penalty
not to exceed $22,000 per violation may be assessed. Each day a violation continues
shall constitute a separate offense. Appendix A contains a schedule of civil penalty
amounts used in connection with this rule.

(b) Also, the employee may be subject to disqualification.(See Part 209).

(c) Anyone who falsifies any record required by the rule may be subject to criminal

(d) FRA may also issue an emergency order, compliance order, and/or
injunction.

§240.13-- Information Collection Requirement
This is a technical requirement concerning paperwork reduction.

Subpart B — Component Elements of the Certification Process

49 C.F.R. § 240.101—Certification Program Required

(a) After the effective date, each railroad in operation on that date and subject to this part shall have a written program for certifying the qualifications of locomotive engineers.

(b) A railroad commencing operations after the effective date shall have such a program prior to commencing operations.

(c) Each railroad's certification program shall:

   (1) have a procedure for designating any person it determines to be qualified as a supervisor of locomotive engineers that complies with the criteria established in § 240.105;

   (2) contain a designation of the classes of service that it determines will be used in compliance with the criteria established in § 240.107;

   (3) have a procedure for evaluating prior safety conduct that complies with the criteria established in § 240.109;

   (4) have a procedure for evaluating visual and hearing acuity that complies with the criteria established in § 240.121;

   (5) have a procedure for training that complies with the criteria established in § 240.123;

   (6) have a procedure for knowledge testing that complies with the criteria established in § 240.125;

   (7) have a procedure for skill performance evaluation that complies with the criteria established in § 240.127; and

   (8) have a procedure for operational monitoring that complies with the criteria established in § 240.129.

§ 240.103—Approval of Design of Individual Railroad Programs by FRA

(a) Each railroad shall submit a written program and description of program conformity with Appendix B.

(b) That submission shall contain an election either (1) to train student engineers and thereby obtain authority for that railroad to initially certify a person as an engineer in an appropriate class of service or (2) to recertify only engineers trained by other railroads. A
railroad that elects to train student engineers may either conduct the training program or employ a training program conducted by some other entity.

(c) A railroad's program is considered approved 30 days after the pertinent filing date unless the Administrator notifies the railroad in writing that the program does not conform.

(d) The railroad shall resubmit its program within 30 days after the date of such notice of deficiencies. A failure to resubmit the program with the necessary revisions will be considered a failure to implement a program under this part.

(e) A railroad that intends to materially modify its program after receiving initial FRA approval shall submit a description of how it intends to modify the program at least 30 days prior to implementing such a change.

§240.104-- Criteria for Determining Whether a Railroad Operation Requires A Certified Locomotive Engineer

Any person operating a locomotive or group of locomotives, regardless of being coupled to other rolling stock, must be a certified locomotive engineer, except:

(1) specialized roadway maintenance equipment, including to and from work site, or

(2) dual purpose vehicle which is: (i) specialized roadway maintenance equipment, including to and from work site; (ii) moving under authority of MOW rules (§ 214.353); (iii) operator trained and qualified accordance with roadway worker protection; and (iv) when hauling cars, with sufficient air brakes (i.e., not less than 85%).

§ 240.105-- Criteria for Selection of Designated Supervisors of Locomotive Engineers

(a) Any person a railroad is considering for qualification as a supervisor of locomotive engineers shall:

(1) know and understand the requirements of this part;
(2) appropriately test and evaluate the knowledge, skills, and ability of locomotive engineers;
(3) have the necessary supervisory experience to prescribe appropriate remedial action; and is a certified engineer.

For railroads without DSLE(s) the chief operating officer will determine if any designate possesses the necessary performance skills (§ 240.127), taking into consideration any special operating characteristics.

§ 240.107-- Criteria for Designation of Classes of Service

(a) Each railroad's program shall reflect which of the three classes of service, provided for in paragraph (b) of this section, that it will issue certifications for under its
program.

(b) A railroad may issue certificates to the following classes of service:

(1) Train service engineers,
(2) Locomotive servicing engineers, and
(3) Student engineers.

(c) The following operational constraints apply to each class of service:

(1) Train service engineers may operate locomotives singly or in multiples and may move them with or without cars coupled to them;

(2) Locomotive servicing engineers may operate locomotives singly or in multiples but may not move them with cars coupled to them; and

(3) Student engineers may operate only under direct and immediate supervision of an instructor engineer.

(d) Each railroad is authorized to impose additional conditions or operational restrictions on the service an engineer may perform beyond those identified in this section provided those conditions or restrictions are not inconsistent with this part.

§ 240.109-- General Criteria for Eligibility Based on Prior Safety Conduct

(a). . . .

(b) A railroad shall evaluate the prior safety conduct of any person it is considering for qualification as a locomotive engineer. A person is ineligible if he/she has an adverse record of prior safety conduct as provided for in § 240.115, § 240.117 and § 240.119.

(c) The railroad shall evaluate data which reflects the person's prior safety conduct as a railroad employee and as an operator of a motor vehicle.

(d). . . .

(e) When evaluating the motor vehicle driving record or railroad employment record, the railroad shall not consider information concerning the driving record or prior railroad safety conduct which occurred prior to the effective date.

(f) The employee shall have an opportunity to comment on any record which contains the person's prior safety conduct, including records concerning substance abuse (if the railroad would use such information to render the employee ineligible).

(g) All comments under (f) shall be retained by the railroad.

The information to be evaluated shall include: (1) the railroad's own records; (2) data furnished by any other railroad formerly employing the person; and (3) data furnished
by any governmental agency with pertinent motor vehicle driving records.

(h) Nothing in this section shall be deemed as imposing a duty or requirement that a person have prior railroad employment experience or obtain a motor vehicle driver's license in order to become a certified locomotive engineer.

§ 240.111-- Individual's Duty to Furnish Data on Prior Safety Conduct as Motor Vehicle Operator

(a) Each person seeking certification or recertification shall, within 366 days before the railroad's decision or certification:

(1) make his/her driving record available to the railroad; and

(2) take any additional actions, including providing any necessary consent, required by State or Federal law to make information concerning his/her driving record available to that railroad;

(b) Each person seeking certification or recertification shall:

(1) request, in writing, that the chief of each driver licensing agency (that last issued the person's license and from any other state that issued his/her a license within 5 years), provide a copy of that agency's information concerning his/her driving record to the railroad; and

(2) request that a check of the National Driver Register be performed and be provided to that railroad.

(c) . . .

(d) . . .

(e) . . .

(f) If advised by the railroad that a driver licensing agency or the National Highway Traffic Safety Administration has informed the railroad that additional information concerning that person's driving history may exist in the files of a state agency not previously contacted in accordance with this section, such person shall:

(1) request that licensing agency to provide such information.

(2) . . .

(g) Any person who has never obtained a driving license is not required to comply with (b).

The request required for compliance shall be submitted within the 366 days preceding the date of the railroad's decision concerning initial certification and/or
recertification.

(h) Each certified engineer or person seeking initial certification shall report incidents pursuant to § 240.115(b)(1) & (2) within 48 hours of conviction or completed state action.

§ 240.113-- Individual's Duty to Furnish Data on Prior Safety Conduct as an Employee of a Different Railroad

(a) Each person seeking certification or recertification shall, within 366 days preceding the railroad's decision on certification or recertification take the actions required by paragraph (b) to make information concerning his/her prior railroad service record available to the railroad that is considering such certification or recertification.

(b) Each person seeking certification or recertification under this part shall request, in writing, that the former employing railroad provide a copy of that railroad's available information concerning his/her service record to the railroad that is considering such certification or recertification.

(c) . . . .

§ 240.115-- Criteria for Consideration of Prior Safety Conduct as Motor Vehicle Operator

(a) . . . .

(b) When evaluating a person's motor vehicle driving record, a railroad shall not consider information concerning motor vehicle driving incidents that occurred more than 36 months before the month in which the railroad is making its certification decision.

A railroad shall only consider information concerning the following types of motor vehicle incidents:

(1) conviction for operating a motor vehicle while under the influence of or impaired by, alcohol or a controlled substance;

(2) conviction for refusal to undergo such testing for above when suspected of operating a vehicle while under the influence of alcohol or a controlled substance.

(c) If such an incident is identified, the railroad shall provide the information to the EAP counselor, together with the person's service record, and shall refer the person for evaluation.

If the employee is evaluated as not currently affected by an active substance abuse disorder, the above data shall not be used in considering certification. However, if
the EAP counselor recommends, the railroad shall condition the certification on participation in further treatment and/or follow-up testing.

If the person is evaluated as currently affected by substance abuse disorder, the person shall not be certified.

§ 240.117-- Criteria for Consideration of Operating Rules Compliance Data

(a) . . . .

(b) A person who has demonstrated a failure to comply with railroad rules and practices for the safe operation of trains shall not be currently certified as a locomotive engineer, or

(c) (1) shall have certification revoked.

(2) A DSLE who is monitoring and fails to take appropriate action to prevent violation of paragraph (he shall have his certification revoked. The duty may be met by warning the engineer of the potential or foreseeable violation. The DSLE will not be held culpable when conducting operational tests (§§ 217.9 and 240.303)

(d) Limitations on consideration of prior operating rule compliance data. In reviewing whether a person may be or remain certified as a locomotive engineer, a railroad shall only consider conduct described in paragraph (e) that occurred within a period of 36 consecutive months prior to the review. A review of certification shall be initiated promptly upon the occurrence and documentation of any incident of conduct described in this paragraph.

(e) A railroad shall only consider violations of its operating rules and practices that involve:

(1) Failure to control a locomotive or train in accordance with a signal indication that requires a complete stop before passing it;

(2) Failure to adhere to limitations concerning train speed when the speed of the train exceeds the maximum authorized limit by at least 10 miles per hour. If the train speed exceeds by more than one half the authorized speed and results in a reportable accident or incident, it shall be considered also;

(3) Failure to adhere to procedures for the safe use of train or engine brakes when the procedures are required for compliance with transfer, initial, or intermediate terminal test;

(4) Occupying main track or track segment without proper authority;

(5) Tampering with locomotive mounted safety devices or knowingly operating or permitting to be operated with unauthorized disabled safety device controlling the
(6) Noncompliance with § 219.101 (i.e. alcohol/drug tests); however, such incidents shall be a violation only under (g)(2) and (g)(3) of this section.

(f) If in any single incident the person's conducted contravened more than one operating rule or practice, that event shall be treated as a single violation for the purposes of this section. A violation of (e)(1) through (e)(5) that occurs during operational compliance test under this regulation shall be counted in determining period of ineligibility.

(g) A period of ineligibility described in this paragraph begins on the date of the most recent violation for a person not then currently certified. If the person is currently certified, it begins on date of notification of the denial. The following standards shall apply to such consideration:

1. In the case of single incident involving violation of one or more of these sections, the person shall have certificate revoked for a period of one month.

2. In the case of two separate incidents involving violations of one or more of these sections that occurred within 24 months of each other, the person shall be ineligible to hold a certificate for a period of six months.

3. In the case of more than three such violations in any consecutive 36 months interval, the person shall be ineligible to hold a certificate for a period of one year.

4. Where incidents of noncompliance with different sections of this Chapter occur, the longest period of ineligibility shall be imposed.

(h) Future eligibility to hold certificate.

1. Only a person whose certification has been denied or revoked for a period of one year or less under (g)(3) for reasons other than § 219.101, shall be eligible for grant or reinstatement of the certificate prior to the expiration of the initial period of ineligibility. In order to qualify for grant or reinstatement, the person must also meet paragraphs (h)(1) through (3).

2. The person shall not be eligible for grant or reinstatement unless and until —

   (i) The person has been evaluated by the railroad designated supervisor of locomotive engineers and determined to have received adequate remedial training;

   (ii) The person has successfully completed any mandatory program of training or retraining if the railroad determined this was necessary prior to return to service; and
(iii) At least one-half the pertinent period of ineligibility specified in paragraph (g)(2) has elapsed.

(i) The FRA has concluded that certain types of incidents are too minor to warrant decertification. Therefore, this new section provides in no event shall incidents that meet the criteria of paragraphs (i)(1) through (4) of this section be considered as prior incidents for the purposes of paragraph (g)(3) of this section even though such incidents could have been or were validly determined to be violations at the time they occurred. Incidents that shall not be considered under paragraph (g)(3) of this section are those that:

(1) Occurred prior to effective date of this amendment;

(2) Involved violations of one or more of the following operating rules or practices:

   (i) Failure to control a locomotive or train in accordance with a signal indication;

   (ii) Failure to adhere to limitations concerning train speed;

   (iii) Failure to adhere to procedures for the safe use of train or engine brakes; or

   (iv) Entering track segment without proper authority;

(3) Were or could have been found to be violations under this section as it read prior to May 10, 1993; and

(4) Would not be a violation of paragraph (e) of this section as amended.

(j) The following shall not be considered a violation of paragraph (g)(3) if it involved violation of failure to control in accordance with signal indication that requires a complete stop, or exceeded the maximum authorized speed by at least 10 mph or one half the authorized speed; and would not be a violation of paragraph (e).

§ 240.119--Criteria for Consideration of Substance Abuse Disorder and Alcohol/Drug Rules Compliance

(a) . . .

(b) Fitness requirement.

(1) A person who has an active substance abuse disorder shall not be currently certified as a locomotive engineer.

(2) and (3) Unless eligible for a voluntary referral program, a certified engineer who has an active substance abuse disorder shall be suspended from certification. Certification may be reinstated as provided in (d). If placed in a voluntary referral program, the evaluation shall be confidential.
(c) **Prior alcohol/drug conduct; Federal rule compliance.**

(1) In reviewing whether a person may be or remain certified as a locomotive engineer, a railroad shall consider any violations of the alcohol and drug regulations that occurred within a period of 60 consecutive months prior to the review. A review of certification shall be initiated promptly upon the occurrence of any alcohol or drug incident of conduct.

Violation of the following alcohol/drug regulations shall result in ineligibility to hold a certificate:  

**Violation of:**

<table>
<thead>
<tr>
<th>Violation of</th>
<th>§219.102</th>
<th>§219.101</th>
<th>Both .101 and .102</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 viol.</td>
<td>2 viol.</td>
<td>more than 2 viol.</td>
<td>2 or more viol.</td>
</tr>
<tr>
<td>Until EAP evaluation &amp; completion of any RR required rehabil</td>
<td>2 years</td>
<td>5 years</td>
<td>5 years</td>
</tr>
<tr>
<td>2 or more viol.</td>
<td>1 viol.</td>
<td>2 or more viol. of either</td>
<td>1 viol of each</td>
</tr>
<tr>
<td>5 years</td>
<td>9 mos 2/</td>
<td>5 years</td>
<td>3 years</td>
</tr>
</tbody>
</table>

1/ In cases of refusal to provide a sample for testing, the drug testing regulations apply regarding the sanction to be imposed.

2/ If the violation was discovered through "co-worker report" in § 219.405 and the engineer waives investigation, then the certificate shall be suspended only during evaluation and any required treatment.

Once returned to service the employee shall be subject to follow-up alcohol and drug testing for up to 60 months. Such tests shall not be fewer than 6 alcohol tests and 6 drug tests during the first 12 months.

(d) **Future eligibility to hold certificate following alcohol/drug violation.** If the employee has been denied certification, or it has been revoked or suspended because of an alcohol/drug violation, the person shall not be eligible for reinstatement until the person has (1) been evaluated by an EAP counselor; (2) completed any program of counseling or treatment; and (3) presented a urine sample that tests negative.

(e) **Confidentiality protected.** The railroad under § 219.403 ("Voluntary Referral Policy") shall treat voluntary referrals for substance abuse counseling and treatment as confidential; and the certification status of an engineer who is successfully assisted under the procedures of that section shall not be adversely affected. The only exception is if the person at any time refuses to cooperate in a recommended course of counseling or treatment.


§ 240.121-- Criteria for Consideration of Vision and Hearing Acuity Data

(a) . . .

(b) In general, no person shall be certified who does not have visual acuity and/or hearing acuity that meets or exceeds the levels prescribed in this section and Appendix X. (An exception is where the railroad's medical examiner determines that the person still has the ability to operate a locomotive safely).

(c) Each person shall have the following visual acuity:
   (1) for distant viewing either (i) distant visual acuity of at least 20/40 (Snellen) in each eye without corrective lenses or (ii) distant visual acuity separately corrected to at least 20/40 (Snellen) with corrective lenses and distant binocular acuity of at least 20/40 (Snellen) in both eyes with or without corrective lenses;

   (2) a field of vision of at least 70 degrees in the horizontal meridian in each eye;

   (3) the ability to recognize and distinguish between the colors of railroad signals by successfully completing one of the tests in Appendix X.

(d) Unless the railroad medical examiner determines that a person still has the ability to safely operate a locomotive, each person shall have hearing acuity that meets or exceeds the following thresholds when tested by use of an audiometric device, (calibrated to American National Standard Specification for Audiometers, S 3.6-1969): the person does not have an average hearing loss in the better ear greater than 40 decibels at 500 Hz, 1,000 Hz, 2,000 Hz with or without use of a hearing aid.

(e) Even though not meeting the above requirements, the railroad's medical examiner may determine that the person has the ability to operate the locomotive safely, and the person may be certified conditioned on any restrictions the medical examiner imposes in writing.

(f) As a condition of maintaining certification, the engineer is obligated to notify the railroad's medical department or official if vision or hearing has deteriorated and that he no longer meets the standards or requirements of this section.

§ 240.123-- Criteria for Initial and Continuing Education

(a) . . .

(b) A railroad shall provide for the continuing education of certified locomotive engineers.
(c) Initial training shall at a minimum:

   (1) be composed of classroom, skill performance, and familiarization with physical characteristic components;
(2) include both knowledge and performance skill testing;

(3) be conducted under the supervision of a qualified class instructor;

(4) be subdivided into segments or periods of appropriate duration to effectively cover the following subject matter areas: (i) personal safety, (ii) operating rules, (iii) mechanics, (iv) train handling procedures (including train brake tests), (v) familiarization with physical characteristics, and (vi) compliance with Federal regulations;

(5) be conducted so that the performance skill component shall (i) be under the supervision of a qualified instructor engineer located in the same control compartment whenever possible; (ii) place the student engineer at the controls of a locomotive for a significant portion of the time; and (iii) permit the student to experience whatever variety of types of trains are normally operated by the railroad.

(d) A person may acquire familiarity with physical characteristics of a territory by methods described in the railroad’s plan as described in Appendix B (which applies to new railroads or newly acquired railroads). Otherwise the person must acquire familiarization with hyrail trips or lite locomotive trips in compliance with the plan submission.

§ 240.125-- Criteria for Testing Knowledge

(a) . . .

(b) A railroad shall have procedures for testing to determine that the person has sufficient knowledge of the railroad's rules and practices.

(c) The testing methods selected by the railroad shall be:

   (1) designed to examine a person's knowledge of the railroad's rules and practices for the safe operation of trains;

   (2) objective in nature;

   (3) administered in written form;

   (4) cover the following subjects: (i) personal safety practices; (ii) operating practices; (iii) equipment inspection practices; (iv) train handling practices including familiarity with the physical characteristics of the territory; and (v) compliance with Federal safety rules;

   (5) sufficient to accurately measure the person's knowledge of the subjects covered; and

   (6) conducted without open reference books or other materials.
(d) The test shall be documented in writing.

§ 240.127-- Criteria for Examining Skill Performance

(a) . . . .

(b) A railroad shall have procedures for examining the performance skills to determine whether the person has the skills to safely operate locomotives and/or trains in the most demanding class of service.

(c) The testing procedures selected by the railroad shall be:

(1) designed to examine a person's skills in safely operating locomotives or trains when performing the most demanding class or type of service;

(2) conducted by a designated supervisor of locomotive engineers; who does no need to be qualified on physical characteristics of the territory which test will be conducted;

(3) cover the following subjects during the test period (i) operating practices; (ii) equipment inspection practices; (iii) train handling practices; and (iv) compliance with Federal safety rules;

(4) be of sufficient length to effectively evaluate the person's ability to operate trains; and

(5) conducted when the person is at the controls of the type of train, or Type I or Type II simulator to be normally operated on that railroad or segment of railroad.

(d) The conduct of the test shall be documented in writing and shall contain:

(1) the relevant facts concerning the train being operated;

(2) the constraints applicable to its operation; and

(3) the factors observed and relied on for evaluation purposes by the designated supervisor.

§ 240.129-- Criteria for Monitoring Operational Performance of Certified Engineers

(a) . . . .

(b) A railroad shall have procedures for monitoring operational performance of a locomotive engineer.

(c) The procedures shall be designed:

(1) to determine that the person possesses and routinely employs the skills to safely operate locomotives and/or trains;
(2) so that each engineer shall be annually monitored;

(3) so that the locomotive engineer is either accompanied by the designated supervisor for a reasonable length of time or has his/her train handling activities electronically recorded by a train operations event recorder;

(d) The procedures may be designed so that the locomotives engineer being monitored is at the controls of the type of train normally operated, or at the controls of a Type I and Type II simulator.

(e) The testing and examination procedures shall be designed:

(1) so that each locomotive engineer shall be given at least one unannounced test each calendar year.

(2) to test engineer compliance with signals that display less than a "clear" aspect.

(3) to test engineer compliance with provisions that require affirmative response by the locomotive engineer to less favorable conditions than that which existed prior to initiation of the test;

(4) to test engineer compliance with provisions most often cited by the railroad as the cause of train accidents or train incidents;

(5) so that the administration of these test is effectively distributed throughout whatever portion of a 24-hour day that the railroad conducts its operations; and

(6) so that individual tests are administered without prior notice to the engineer being tested.

Subpart C — Implementation of the Certification Process

49 C.F.R. § 240.201 -- Schedule for Implementation

(a) Each railroad in operation on that date shall designate in writing any person(s) it deems qualified as a designated supervisor of locomotive engineers.

(b) Each railroad shall designate in writing all persons that it deems to be qualified as locomotive engineers for the purpose of compliance with this part. Each railroad shall issue a certificate that complies with § 240.223 to each person that it designates as qualified.

(c) No railroad shall permit an employee to perform service for more than 36 months, unless the person has been certified in compliance with this subpart C.

(d) No railroad shall permit or require any person to operate a locomotive in any class of locomotive or train service unless that person has been certified as a qualified locomotive engineer and issued a certificate that complies with § 40.223.
(e) No Class I railroad (including Amtrak) or railroad providing commuter service shall initially certify or recertify a person as a locomotive engineer in either locomotive or train service unless that person has been tested, evaluated, and determined to be qualified in accordance with procedures that comply with subpart C.

(f) …

(g) …

(h) A railroad may continue to designate any person it deems qualified prior to the effective date for compliance.

(i) A new railroad commencing operations prior to the pertinent date for compliance by a railroad of its class may designate persons as certified locomotive engineers on the basis of paragraph (b) until the pertinent date for compliance.

§ 240.203-- Determinations Required As a Prerequisite to Certification

(a) This requires the railroads before certifying an engineer determine that the person:

(1) meets the requirements of § 240.115 (motor vehicle safety, § 240.117 (operating rules), and § 240.119 (alcohol/drug);

(2) meets the vision and hearing acuity standards of § 240.121;

(3) has the necessary knowledge, by passing a test, that meets the requirements of § 240.125 (the railroad's rules and practices);

(4) passes an operational performance test under § 240.127; and

(5) if not previously certified, has completed a training program that meets § 240.123.

(b) A railroad may certify a person as a student engineer after determining that the person meets the visual and hearing acuity standards of § 240.121. A railroad may subsequently certify a student engineer as either a locomotive servicing engineer or a train service engineer without further review of their acuity status as required under paragraph (b) of this section provided it determines that:

(1) the person successfully completed a training program that complies with § 240.127;

(2) the person meets the eligibility requirements of §§ 240.109 (prior safety conduct) and 240.119 (alcohol/drug); and

(3) a period of not more than 24 months has elapsed since the student engineer certification was issued.

§ 240.205-- Procedures for Determining Eligibility Based on Prior Safety Conduct

(a) Each railroad, prior to certifying or recertifying an engineer for any class of
service shall determine that he meets the eligibility requirements involving prior conduct as a motor vehicle operator, involving prior conduct as a railroad worker, and involving substance abuse disorders and alcholol/drug rules compliance.

(b) The railroad shall have documentation of the determinations made in (a), including any EAP evaluations whether the person is affected by an active substance abuse disorder.

§ 240.207-- Procedures for Making the Determination on Vision and Hearing Acuity

(a) Each railroad, prior to initially certifying or recertifying any person as an engineer for any class of service, shall determine that the person has visual acuity and hearing acuity prescribed in § 240.121.

(b) The railroad shall have or file the medical examiner's certificate that the acuity standards have been met, or that the standards were not met and whether the person can still be certified under certain conditions.

(c) The examinations must be by a licensed optometrist and audiologist or a technician responsible to that person.

(d) If the examination discloses that the person needs either corrective lenses or a hearing aid, or both, either to meet the threshold acuity levels or to meet a lower threshold (determined by the railroad's medical examiner to be sufficient to safely operate a locomotive or train on that railroad), that fact shall be noted on the certificate issued.

(e) Any person with such a certificate notation shall use the relevant device while operating a locomotive in locomotive or train service unless the railroad's medical examiner determines that the person can safely operate without using the device.

§ 240.209-- Procedures for Making the Determination on Knowledge

A railroad shall certify or recertify an engineer that exhibited his/her knowledge for safe operation of trains by achieving a passing grade after participating in testing procedures. If the person fails the test, he/she cannot operate a train prior to being reexamined.

§ 240.211-- Procedures for Making the Determination on Performance Skills

This section requires the engineer to demonstrate his/her skills to safely operate in the most demanding class of service by achieving a passing grade during testing. The person may be reexamined upon failing the test.

§ 240.213-- Procedures for Making the Determination on Completion of Training Program

(a) The engineer is required to have the knowledge and skills to safely operate a locomotive or train in the most demanding class or type of service that the person will be
permitted to perform.

(b) In making this determination, the employee shall:

   (1) complete a training program (§ 240.123);

   (2) has knowledge and skills by achieving a passing grade under the testing and evaluation procedures; and

   (3) the person is familiar with the physical characteristics of the railroad or its pertinent segments.

§ 240.215-- Retaining Information Supporting Determinations

(a) The railroad shall maintain a record for each certified engineer that contains the information the railroad relied on in making the determinations.

(b) The information shall include records:

   (1) of the person's prior safety conduct;

   (2) of data from another railroad;

   (3) of the motor vehicle driving record; and

   (4) furnished by the person concerning eligibility.

The information also shall include that obtained by § 240.207 regarding vision and hearing acuity.

(c) § 240.207 regarding vision and hearing acuity.

(d) § 240.209 regarding knowledge; and

(e) § 240.211 regarding skills.

(f) If the railroad is relying on the training program of another entity, the railroad shall maintain the data furnished by such entity.

(g) If a railroad is relying on a certification made by another railroad, the railroad shall maintain the data furnished.

(h) All records required under this section shall be retained for a period of four years.

(i) It shall be unlawful for any railroad to knowingly or any individual to willfully:

   (1) make, cause to be made, or participate in the making of a false entry on the record(s); or
(2) otherwise falsify that record through material misstatement, omission, or mutilation.

(j) A railroad may maintain the information required to be retained in an electronic format.

§ 240.217-- Time Limitations for Making Determinations

(a) A railroad shall not certify a person unless it is:

(1) eligibility based on visual and hearing acuity medical data less than 366 days old;

(2) data concerning demonstrated knowledge and the knowledge examination being relied on shall be less than 366 days old;

(3) data concerning demonstrated performance skills and the performance skills testing shall be less than 366 days old; or.

(4) data concerning demonstrated performance skills and skill testing conducted 366 days before the railroad’s decision.

(b) The time limitations do not apply to a railroad that is making a certification decision based on determinations made by another railroad in accordance with paragraph (c)(2), § 240.227 or 240.229.

(c) No railroad shall:

(1) certify a person as a qualified locomotive engineer for an interval of more than 36 months; or

(2) rely on a certification issued by another railroad that is more than 36 months old.

(d) The certificate shall be issued no later than 30 days from the date of its decision to certify or recertify the person.

§ 240.219-- Denial of Certification

(a) A railroad shall notify a candidate for certification of information that forms the basis for denying the person certification and provide the person an opportunity to explain or rebut that adverse information in writing prior to denying certification.

(b) This section does not require further opportunity to comment if the railroad's denial is based on § 240.115 (motor vehicle safety), § 240.117 (operating rules), and § 240.119 (alcohol/drugs).

(c) If it denies a person certification or recertification, a railroad shall notify the person of the adverse decision and explain, in writing, the basis for its denial decision.
The document explaining the basis for the denial shall be mailed or delivered to the person within 10 days after the railroad's decision and shall identify the date of the decision.

§ 240.221-- Identification of Qualified Persons

(a) A railroad shall maintain a written record identifying each person designated by it as a supervisor of locomotive engineers.

(b) A railroad shall maintain a written record identifying each person designated as a certified locomotive engineer. That listing of certified engineers shall indicate the class of service the railroad determines each person is qualified to perform and date of the railroad's certification decision.

(c) If joint operations are involved, the controlling railroad shall maintain the listing of persons.

(d) The listing required by paragraphs (a), (b) and (c) shall be updated at least annually.

(e) . . . .

§ 240.223-- Criteria for the Certificate

(a) This section outlines what information is required to be contained in each certificate.

(b) . . . .

(c) . . . .

(d) It shall be unlawful for any railroad to knowingly or any individual to willfully:

1. make, cause to be made, or participate in the making of a false entry on that certificate; or

2. otherwise falsify that certificate through material misstatement, omission, or mutilation.

§ 240.225-- Reliance on Qualification Determinations Made by Other Railroads

Any railroad that is considering certification of a person as a qualified engineer may rely on determinations made by another railroad concerning that person's qualifications, so long as they meet the requirements of this regulation for certifying its own employees. If a program does not specify training for previously certified engineer, the engineer must take a retraining program.

§ 240.227-- Reliance on Qualification Requirements of Other Countries.
(a) A railroad that conducts joint operations with a Canadian railroad may certify that a person is qualified provided the employee of a Canadian railroad meets or exceeds the qualifications standards issued by Transport Canada for such service.

(b) Any Canadian railroad that is required to comply with this regulation may certify that a person is qualified:

   (1) the person is employed by the Canadian railroad; and

   (2) the employee of a Canadian railroad meets or exceeds the qualifications standards issued by Transport Canada for such service.

§ 240.229-- Requirements for Joint Operations Territory

(a), (b) A railroad that is responsible for controlling the conduct of joint operations with another railroad shall not permit or require any person to operate a locomotive in any class unless the person has been certified, and shall certify the said person as a qualified engineer for purposes of joint operations.

(c) This sets out the requirements if the controlling railroad relies on certification issued by another railroad. In addition, the employing railroad shall determine that the person operating on controlling railroad is certified and qualified on that track segment.

(d) . . . .

(e) A railroad responsible for controlling the conduct of joint operations with another railroad shall be deemed to be in compliance when it provides a qualified person to accompany a locomotive engineer who lacks joint operations certification during that engineer’s operations in joint operation territory.

(f) A railroad that is responsible for controlling the conduct of joint operations with another railroad may permit a certified locomotive engineer to operated a locomotive in any class of train or engine service without determining that the person has been certified as a qualified locomotive engineer for the purposes of joint operations when a minimal joint operation is involved. For the purposes of this section a minimal joint operation exists when a locomotive or train belonging to one railroad is being operated on the same track on which operations are conducted by the railroad controlling operations, under the following conditions;

   (1) The maximum authorized speed for operations on the track does not exceed 20 miles per hour;

   (2) The track is other than a main track;

   (3) Operations are conducted under operating rules that require every locomotive and train to proceed at a speed that permits stopping within one half the range of vision
of the locomotive engineer; and

(4) The maximum distance for joint operations on the track does not exceed one mile.

§240.231-- Requirements for Locomotive Engineers Unfamiliar With Characteristics in Other Than Joint Operations

(a) No engineer shall operate over territory unless qualified on physical characteristics pursuant to the railroad’s program, except as provided in (b).

(b) Except as provided in (c), if the engineer lacks qualifications as required in (a), any person, other than assigned crew member, qualified over the territory pursuant to the railroad’s program shall serve as pilot.

(1) If the engineer has never been qualified over the territory, the pilot shall be a qualified or certified engineer and be other than an assigned crew member.

(2) If the engineer’s qualifications over the territory has expired, the pilot may be any person, other than a crew member, qualified on the territory;

(c) Pilots are not required if movement is on track with average grade of less than 1% over 3 continuous miles, and

(1) Track is other than main; or

(2) Maximum distance does not exceed one mile; or

(3) Maximum speed for any operation does not exceed 20 mph; or

(4) Operations require all trains or locomotives to proceed at speed than requires stopping within one half the range of vision.

Subpart D — Administration of the Certification Programs

49 C.F.R. § 240.301-- Replacement of Certificates

This section requires prompt replacement of lost, stolen or mutilated certificates.

§ 240.303-- Operational Monitoring Requirements

(a) The railroad is required to monitor the engineer by operational monitoring observations and by conducting unannounced operating rules compliance tests.

(b) Each locomotive engineer shall be given at least one operational monitoring observation by a qualified supervisor of locomotive engineers in each calendar year, and

(c) Each locomotive engineer shall be given at least one unannounced compliance test each calendar year.

(d) The unannounced tests shall includes the engineer responding to:

(1) signals that display less than a "clear" aspect;
(2) less favorable operating conditions than that which existed prior to the test;

(3) rules which resulted in accidents/incidents on the railroad.

(4), (5) and (6) the tests shall be distributed throughout the day without prior notice to the engineer. The results shall be recorded.

§ 240.305-- Prohibited Conduct by Certified Engineers

(a) It shall be unlawful to:

(1) Operate past a signal indication, excluding hand or radio signal or switch that requires complete stop before passing.

(2) Exceeding maximum authorized speed by at least 10 mph. Only conditional clause of restricted speed, or operational equivalent thereof, which ; or

(3) Failure to adhere to brake procedures under §§232.12 & .13 and Part 238;

(4) Failure to comply with any mandatory directive by occupying a main track or segment of track without authority.

(5) Tampering with locomotive mounted safety devices or knowingly operating or permitting to be operated with unauthorized disabled safety device in control locomotive.

(6) Be a DSLE who is monitoring and fails to take appropriate action to prohibit a violation of this section. A DSLE will not be held liable for conducting operational tests under §§ 217.9 and 240.303.

(b) Each locomotive engineer who has received a certificate required under this part shall:

(1) have that certificate in his/her possession while on duty as an engineer; and

(2) display that certificate upon request.

(c) Any locomotive engineer who is notified or called to operate a locomotive or train that would cause him/her to exceed the limits set forth in subpart B shall immediately notify the railroad that he/she is not qualified to perform that anticipated service.

(d) A locomotive engineer who has a current certificate from more than one railroad shall immediately notify the unaffected railroad(s) if he/she is denied re-certification by a railroad or has his/her certification revoked by a railroad.

(e) . . . .
§ 240.307-- Revocation of Certification

(a) Except as provided in 240.119(f), if a person no longer meets the qualification requirements, the railroad shall revoke the person's certificate.

(b) Pending a revocation determination under this section, the railroad shall:

   (1) Upon receipt of reliable information indicating the person's lack of qualification under this part, immediately suspend the person's certificate;

   (2) Provide written notice of the reason for the suspension, the pending revocation, and an opportunity for hearing before a presiding officer other than the investigating official; In the absences of an applicable collective bargaining agreement, written confirmation must be made within 96 hours;

   (3) convene the hearing within the deadline prescribed by either (c)(1) or applicable collective bargaining agreement;

   (4) determine, based on the record of the hearing, whether the person meets the qualification requirements;

   (5) when appropriate impose the revocation period set out in § 240.117 or 240.119. . . ; and

   (6) retain the record of the hearing for 3 years after the date of the decision.

(c) Except as provided for in paragraphs (d), (f) (i), and (j) of this section, a hearing required by this section shall be conducted in accordance with the following procedures:

   (1) The hearing shall be convened within 10 days of the date the certificate is suspended unless the locomotive engineer requests or consents to delay in the start of the hearing.

   (2) The hearing shall be conducted by a presiding officer, who can be any qualified person authorized by the railroad other than the charging officer.

   (3) The presiding officer will exercise the powers necessary to regulate the conduct of the hearing for the purpose of achieving a prompt and fair determination of all material issues in controversy.

   (4) The presiding officer shall convene and preside over the hearing.

   (5) Testimony by witnesses at the hearing shall be recorded verbatim.

   (6) All relevant and probative evidence shall be received unless the presiding officer determines the evidence to be unduly repetitive or so extensive and lacking in relevancy that its admission would impair the prompt, orderly, and fair resolution of the proceeding.
(7) The presiding officer may:

   (i) Adopt any needed procedures for the submission of evidence in written form;

   (ii) Examine witnesses at the hearing;

   (iii) Convene, recess, adjourn or otherwise regulate the course of the hearing; and

   (iv) Take any other action authorized by or consistent with the provisions of this part and permitted by law that may expedite the hearing or aid in the disposition of the proceeding.

(8) Parties may appear and be heard on their own behalf or through designated representatives. Parties may offer relevant evidence including testimony and may conduct such examination of witnesses as may be required for a full disclosure of the relevant facts.

(9) The record in the proceeding shall be closed at conclusion of the hearing unless the presiding officer allows additional time for the submission of information. In such instances the record shall be left open for such time as the presiding officer grants for that purpose.

(10) At the close of the record, the railroad official, other than investigating officer shall sign a written decision in the proceeding.

(11) The decision shall:

   (i) Contain the findings of fact as well as the basis therefor, concerning all material issues of fact presented on the record; and

   (ii) Be served on the employee.

(12) The railroad shall have the burden of proving that the locomotive engineer's conduct was not in compliance with the applicable railroad operating rule or practice or Part 219 of this chapter.

(d) A hearing required by this section which is conducted in a manner that conforms procedurally to the applicable collective bargaining agreement shall be deemed to satisfy the procedural requirements of this section.

(e) A hearing required under this section may be consolidated with any disciplinary or other hearing arising from the same facts, but in all instances the presiding officer for the hearing shall make separate findings as to the revocation required under this section.

(f) A person may waive the right to the hearing provided under this section.
That waiver shall:

(1) Be made in writing;

(2) Reflect the fact that the person has knowledge and understanding of these rights and voluntarily surrenders them; and

(3) Be signed by the person making the waiver.

(g) A railroad that has relied on the certification by another railroad under the provisions of § 240.227 or § 240.229, shall revoke its certification if, during the period that certification is valid, the railroad acquires information which convinces it that another railroad has revoked its certification after determining, in accordance with the provisions of this section, that the person no longer meets the qualification requirements of this part. The requirement to provide a hearing under this section is satisfied when any single railroad holds a hearing and no additional hearing is required prior to a revocation by more than one railroad arising from the same facts.

(h) The period of certificate suspension prior to the commencement of a hearing required under this section shall be credited towards satisfying any applicable revocation period imposed in accordance with the provisions of § 240.117.

(i) A railroad shall not determine that a person failed to meet qualification requirements and shall not revoke certification if substantial evidence exists that:

(a) Intervening cause prevented or materially impaired engineer’s ability to comply with railroad’s operating rules which would violate § 240.117(e)(1) through (5); or

(j) violation was of a minimal nature and had no direct or potential effect on rail safety.

(k) A railroad shall place relevant information in the records (§240.309 Class I and II and § 240.215 Class III) if evidence becomes available, that meets criteria of (i).

§ 240.309-- Railroad Oversight Responsibilities

(a) Beginning in calendar year 1993, each Class I railroad (including Amtrak and a railroad providing commuter service) and Class II railroad shall conduct a formal annual review and analysis, no later than March 31 of each year concerning the administration of its program for responding to detected instances of poor safety conduct by certified locomotive engineers during the prior calendar year.

(b) 

(c) Based on that review and analysis each railroad shall determine what action(s) it will take to improve the safety of train operations to reduce or eliminate future incidents of that nature.

(d) The FRA may require a report of the findings reached during annual review.
(e) This subsection sets out 10 areas of poor safety conduct for the reporting purposes.

(f) This subsection requires each category of poor safety conduct shall also identify the incidents reported by the railroad from each category.

(g) This subsection requires that the railroad identify the remedial action taken in each of the areas of poor safety conduct.

(h) This requires that the railroad identify the discipline in which punishment initially imposed was reduced.

**Subpart E — Dispute Resolution Procedures**

**49 C.F.R. § 240.401-- Review Board Established**

(a) Any employee adversely affected by a railroad's decision under this regulation who believes that a railroad incorrectly determined that he/she failed to meet the qualification requirements may petition the Federal Railroad Administrator to review it.

(b) The Federal Railroad Administrator has delegated initial responsibility for adjudicating such disputes to the Locomotive Engineer Review Board, which shall be composed of at least three employees of the Federal Railroad Administration.

**§ 240.403-- Petition Requirements**

(a) . . . .

(b) This sets forth the specific procedures to follow when filing a petition and the contents required in the petition.

(c) & (d) A petition seeking review of a railroad's decision to deny or revoke certification shall be filed within 120 days after the date of the railroad's denial decision.

**§ 240.405-- Processing Qualification Review Petitions**

This section sets out the procedures to be followed by the Review Board.

(a) The petition shall be acknowledged in writing by FRA, and a statement that the FRA will render a decision within 180 days from date railroad’s response is received or response period lapsed.

(b) . . . .

(c) The railroad will be given a period of not exceed 60 days to submit to FRA any information that the railroad considers pertinent to the petition.
(d) Triplicate copies to be served upon FRA.

(e) . . .

(f) The Board will only determine whether the railroad's denial was improper under the regulation.

(g) . . .

§ 240.407-- Request for a Hearing

(a) If adversely affected by the decision, either the original petitioner or the railroad involved shall have a right to an administrative hearing concerning that decision.

(b) To exercise that right, the adversely affected party shall file a written request to the Docket Clerk within 20 days of service of the Board's decision on them.

(c) Failure to request the hearing in time will automatically waive any further review.

(d) This sets out what is required in the request for the hearing. The petitioner must specify in some detail what issues need to be reviewed.

(e) The presiding officer sets the hearings schedule and agenda, not the FRA.

§ 240.409-- Hearings

This sets out the procedures to be followed in the FRA hearing.

(a), (b) & (c) The hearing shall be conducted by any presiding officer authorized by FRA, including an administrative law judge. Such person may be a FRA employee. The hearing is a de novo proceeding, not a review of the initial decision. The presiding officer has the power to grant any appropriate relief based on the facts.

(d) The presiding officer may authorize discovery, and is given authority to sanction for willful noncompliance.

(e) Pleadings must be signed, which certifies that the contents are true.

(f) This sets out the procedures for service of the papers and the requirement for a proof of service.

(g) If documents are improperly filed, the presiding officer may require them to be corrected or stricken.

(h) Any party has the right to be represented by a union representative or an attorney.

(i) Any person testifying at a hearing or by deposition is entitled to an attorney.

(j) This provides for consolidation or separation where there are 2 or more petitions
being considered at the same time.

(k) This section allows extensions to be granted where the opposing party is not substantially prejudiced.

(l) This provision sets out the procedures for making a motion. There is a 14 day response period for a motion.

(m) Testimony shall be under oath and recorded verbatim.

(n) The presiding officer shall apply the Federal Rules of Evidence as general guidelines.

(o) The presiding officer may administer oaths, issue subpoenas, examine witnesses, etc.

(p) The petitioner before the LERB, the railroad, and the FRA shall be parties at the hearing. All parties may present witnesses and conduct cross examination.

(q) The party requesting the hearing shall be the “hearing petitioner” and shall have the burden of proof.

(r) FRA is a mandatory party to the administrative hearing.

(s) The record will normally be closed at the conclusion of the hearing, unless the presiding officer rules otherwise.

(t) This section sets out what must be contained in the final decision. It shall set out findings of fact and conclusions of law. The decision constitutes final agency action unless an aggrieved party files an appeal within 35 days after issuance.

§ 240.411-- Appeals

(a) Any party aggrieved by the presiding officer's decision may file an appeal within 35 days of issuance of the decision with the Federal Railroad Administrator.

A copy of the appeal shall be served on each party. The appeal shall set forth objections to the presiding officer's decision, supported by reference to applicable laws and regulations and with specific reference to the record. If no appeal is filed, the presiding officer’s decision constitutes final agency action.

(b) A party may file a reply to the appeal within 25 days of service of the appeal. The reply shall be supported by reference to applicable laws and regulations and with specific reference to the record, if the party relies on evidence contained in the record.

(c) The Administrator may extend the period for filing an appeal or a response for good cause shown.

(d) On the Administrator's own initiative or written motion by any party, the
Administrator may grant the parties an opportunity for oral argument.

(e) Administrator may remand, vacate, affirm, alter or modify decision and this constitutes final agency action when administrative remedies have been exhausted.

APPENDIX A-This sets forth the schedule of civil penalties.

APPENDIX B-This appendix establishes the procedures the railroad must follow in its certification program.

APPENDIX C- Procedures for obtaining and evaluating motor vehicle driving record.

APPENDIX D-Identification of state agencies that perform national driver register check.

APPENDIX E- Recommended procedures for conducting skill performance tests.

49 U.S.C. § 20135
49 C.F.R. Part 240
FREIGHT CAR SAFETY STANDARDS

The freight car safety standards set forth in detail all of the components of a freight car which may be considered to be defective. The components covered by the standards are wheels, axles, plain bearing box, roller bearing, trucks, car bodies, couplers, and cushioning devices. In general the various components are considered to be defective if they are cracked, broken, portions missing, or worn.

A railroad freight car which has any component which is defective under the regulations may be moved to another location for repair only if a person designated by the railroad shall determine that (a) it is safe to move the car and (b) the maximum speed and other restrictions necessary for safe movement. The person in charge of the train shall be notified in writing and inform all other crew members of the presence of the defective car and the restrictions upon movement. In addition, a bad order tag shall be securely attached to the side of the car. A copy of each tag shall be retained for 90 days by the railroad.

At each location where a freight car is placed in a train, the freight car shall be inspected before the train departs. In addition, there are periodic inspections required.

The safety appliances regulations provide additional requirements for other components of a car.

SAFETY APPLIANCES

The Safety Appliance Acts provide that all locomotives and cars be equipped with power brakes so that brakemen will not be required to use the hand brake for that purpose of controlling the speed of trains; that all cars must be equipped with automatic couplers so that cars may be coupled automatically by impact, and uncoupled without the necessity of men going between the ends of the cars; and that all cars must be equipped with secure grab irons and handholds on their sides and ends for use in coupling and uncoupling. The use and placement of these safety appliances are required to be uniform.

One section of these Acts cover power brake systems and authorizes the Secretary of Transportation to set minimum percentages of power brake cars on any train. It also provides that the Secretary shall fix the rules, standards, and instructions for the installation, inspection, maintenance, and repair of power and train brakes, with the proviso that any changes in the rules must be for the sole purpose of achieving safety. This will be summarized in detail under the separate heading of "Power Brakes."

The FRA's safety appliances regulations set forth the requirements for the dimensions, location, number, and manner of application of the safety appliances on all types of cars and locomotives including track motor cars. The safety appliances covered are hand brakes, brake step, running board, sill steps, ladders, end ladder clearance, roof handholds, side handholds, horizontal end handholds, vertical end handholds, uncoupling levers and drawbars.

If a car becomes defective or insecure while in transit it may be hauled to the nearest available repair point even if it is to a point on a connecting carrier's line. If the nearest point is on the railroad hauling the car it must be repaired on that railroad. In all cases it must be necessary to make such repairs and such repairs cannot be made except at such a repair point.

49 U.S.C. §§ 20301-20306, 20102
49 C.F.R. §§ 231.1-231.30
BLUE FLAG

Blue signal protection must be provided whenever workmen are on, under or between rolling equipment. "Workman" means railroad employees assigned to inspect, test, repair, or service railroad rolling equipment, or their components including brake systems. Train and yard crews are excluded except when assigned to perform such work on railroad rolling equipment that is not part of the train or yard movement they have been called to operate.

On Track Other Than Main Track:

a. Blue signal must be displayed at or near each manually operated switch providing access to the track.

b. Each such switch must be lined against movement to that track and locked with effective locking device.

c. If switch is remotely controlled, the operator of the switch is required to inform the person in charge of the workmen that the switch providing access to the track has been lined against movement on the track and is locked. Locking devices may not be removed until informed by person in charge of workmen that it is safe.

d. If crossovers are involved, both switches at each crossover must be protected as in (a), (b) and (c).

On Main Track:

a. Blue signal must be displayed at each end of rolling equipment.

b. If equipment to be protected includes one or more locomotives, blue signal must be attached to controlling locomotive.

c. If emergency repair work and blue signals are not available, the enginemen or operator must be notified and measures taken to protect the employees.

Similar procedures are applicable at a locomotive servicing track area and at a shop repair track area.

49 U.S.C. §§ 20131-20132
49 C.F.R. §§ 218.1-218.30
BLUE FLAG PROTECTION FOR MAINTENANCE OF WAY EMPLOYEES

In 1988 Congress required FRA to issue regulations to apply blue signal protection to on-track vehicles where rest is provided to the employees (i.e. camp cars).

"Camp cars" is defined in the regulations as any on-track vehicle, including outfit, camp, or bunk cars or modular homes mounted on flat cars used to house rail employees. It does not include wreck trains. Also, the rule does not apply to camp cars while they are in a train.

Warning signal display.

(a) Warning signals, (i.e., a white disk with the words "Occupied Camp Car") in black lettering during daylight hours and illuminated white signal at night, displayed in accordance with these rules signify that employees are in, around, or in the vicinity of camp cars. Once the signals have been displayed—

(1) The camp cars may not be moved for coupling to other rolling equipment or moved to another location;

(2) Rolling equipment may not be placed on the same track so as to reduce or block the view of a warning signal; and

(3) Rolling equipment may not pass a warning signal.

(b) Warning signals indicating the presence of occupied camp cars, displayed in accordance with theses rules shall be displayed by a designated occupant of the camp cars or that person's immediate supervisor. The signal(s) shall be displayed as soon as such cars are placed on the track, and such signals may only be removed by those same individuals prior to the time the cars are moved to another location.

Methods of protection for camp cars.

When camp cars requiring protection are on either main track or track other than main track:

(a) A warning signal shall be displayed at or near each switch providing access to that track;

(b) The person in charge of the camp car occupants shall immediately notify the person responsible for directing train movements on that portion of the railroad where the camp cars are being parked;

(c) Once notified of the presence of camp cars and their location on main track or other than main track, the person responsible for directing train movements on that portion of the railroad where the camp cars are being parked shall take appropriate action to alert affected personnel of the presence of the cars;
(d) Each manually operating switch providing access to track on which the camp cars are located shall be lined against movement to that track and secured with an effective locking device and spiked; and

(e) Each remotely controlled switch providing access to the track on which the camp cars are located shall be protected in accordance with the next section below.

Remotely controlled switches.

(a) After the operator of the remotely controlled switch is notified that a camp car is to be placed on a particular track, he shall line such switch against movement to that track and apply an effective locking device applied to the lever, button, or other device controlling the switch before informing the person in charge of the camp car occupants that protection has been provided.

(b) The operator may not remove the locking device until informed by the person in charge of the camp car occupants that protection is no longer required.

(c) The operator shall maintain for 15 days a written record of each notification that contains the following information:

   (1) The name and craft of the employee in charge who provided notification;

   (2) The number or other designation of the track involved;

   (3) The date and time the operator notified the employee in charge that protection had been provided in accordance with paragraph (a) of this section; and

   (4) The date and time the operator was informed that the work had been completed, and the name and craft of the employee in charge who provided this information.

(d) When occupied camp cars are parked on main track, a derail, capable of restricting access to that portion of the track on which such equipment is located, shall be positioned no less than 150 feet from the end of such equipment and locked in a derailing position with an effective locking device, and a warning signal must be displayed at the derail.

Alternative methods of protection.

Instead of providing protection for occupied camp cars in accordance with these rules, the following methods of protection may be used:

(a) When occupied camp cars are on track other than main track:

   (1) A warning signal must be displayed at or near each switch providing access to or from the track;
(2) Each switch providing entrance to or departure from the area must be lined against movement to the track and locked with an effective locking device; and

(3) If the speed within this area is restricted to not more than 5 miles per hour, a derail capable of restricting access to that portion of track on which the camp cars are located, will fulfill the requirements of a manually operated switch in compliance with paragraph (a)(2) of this section when positioned at least 50 feet from the end of the camp cars to be protected by the warning signal, when locked in a derailing position with an effective locking device, and when a warning signal is displayed at the derail.

(b) Except as provided in paragraph (a) of this section, when occupied camp cars are on track other than main track:

(1) A derail, capable of restricting access to that portion of the track on which such equipment is located, will fulfill the requirements of a manually operated switch when positioned no less than 150 feet from the end of such equipment; and

(2) Each derail must be locked in a derailing position with an effective locking device and a warning signal must be displayed at each derail.

Movement of occupied camp cars.

Occupied cars may not be humped or flat switched unless coupled to a locomotive.

Appendix A - Penalty Schedule
Appendix B - Statement of Agency Enforcement Policy on Blue Signal Protection for Utility Workers
Appendix C - Statement of Agency Enforcement Policy on Tampering

49 U.S.C. § 20144
49 C.F.R. §§ 218.71-218.80
BLUE FLAG PROTECTION FOR UTILITY EMPLOYEES

The final rule prescribes the requirements for the protection of utility employees while working in yards. This includes such operations as operating switches, working with yard and train crews in assembling trains, participating in power brake inspections and performing federal freight car safety standard inspections. A new section has been added to the Blue Flag regulations to cover the utility employee work. This section describes the circumstances which the utility employee may be permitted to function as a member of a train or yard crew without blue flag protection:

(a) This requires that before a utility employee becomes a temporary member of a train or yard crew, he/she must be subject to the same requirements as other yard or train crews with regard to efficiency tests to determine compliance with operating rules, timetable and special instructions; and also subject to the drug and alcohol regulations as well as the Hours of Service Act.

(b) The utility employee shall perform service as a member of only one train or yard crew at any given time. The employee's assignment must be completed before being assigned to a second crew. Therefore, such an employee could not simultaneously perform duties on two different trains.

(c) The utility employee may serve as a member of a yard and train crew without blue flag protection only under the following conditions:

(1) The train and yard crew is assigned a controlling locomotive that is under the actual control of the locomotive engineer of that crew;

(2) The locomotive engineer is in the cab of the controlling locomotive;

(3) The locomotive engineer may be temporarily replaced by a member of his/her crew so long as the locomotive remains stationary;

(4) The utility employee must establish communication with the crew by contacting the designated crew member on arriving at the train and before commencing any duties with the crew. A utility employee shall not be excluded from blue signal protection unless effective communications is established. If a radio malfunction prevents the required crew notice, then the utility employee must be protected by the blue signal, unless the communication is achieved by talking in person or other equivalent forms of telecommunications. The "designated crew member" is defined as an individual designated under the railroad’s operating rules as the point of contact between a train or a yard crew and a utility employee working with that crew. Such person is typically the conductor, yard engine foreman or locomotive engineer. It should be pointed out that a single locomotive engineer in helper service or a single hostler must provide blue signal protection to a utility employee;

(5) Before any duties are performed, the designated crew member shall provide notice to each of the other crew members of the presence and identity of the utility employee.
(6) The utility employee must be performing one or more of the following functions: set or release hand brakes; couple or uncouple air hoses and other electrical or mechanical connections; prepare rail cars for coupling; set wheel blocks or wheel chains; conduct air brake test which includes cutting air brake components in or out and position retaining valves; inspect, test, install, remove or replace a rear end marking device or end of train device. (It should be emphasized that the utility employee shall not be assigned other responsibilities without full blue flag protection. Therefore, under all other circumstances a utility employee working on, under, or between railroad rolling equipment must be provided with blue signal protection).

(d) The rule prohibits an engineer working alone from going on, under, or between rolling equipment to perform inspections, tests, repairs, or servicing without blue signal protection unless the following conditions are met:

1. Each locomotive in the locomotive engineer's charge is either (i) coupled to the train or other railroad rolling equipment to be assisted or (ii) stopped a sufficient distance from the train or rolling equipment to ensure a separation of at least 50 feet; and,

2. Before a controlling locomotive is left unattended, the one-member crew shall secure the locomotive as follows:

   i. The throttle is in the IDLE position;
   ii. The generator field switch is in the off position;
   iii. The reverser handle is removed (if so equipped);
   iv. The isolation switch is in the ISOLATE position;
   v. The locomotive independent (engine) brake valve is fully applied;
   vi. The hand brake on the controlling locomotive is fully applied (if so equipped); and
   vii. A bright orange engineer's tag (a tag that is a minimum of three by eight inches with the words ASSIGNED LOCOMOTIVE-DO NOT OPERATE) is displayed on the control stand of the controlled locomotive.
If the single engineer crew is working in helper service, safety must also be assured by effective communication between engineers of the controlling locomotives to prevent unexpected movement.\(^{13/}\)

(e) When the utility employee has completed all work he/she shall notify the ranking crew member. Then the ranking crew member shall give notice to each of the other crew members that the utility employee is being released.

(f) No more than 3 utility employees may be attached to one train or yard crew at any given time.

(g) Any railroad employee who is not assigned to a specific train or yard crew shall be provided blue signal protection.

(h) Nothing in this new section shall affect the protection required with respect to inspection of rear end marking devices.

See Appendix B to Part 218 for Statement of Agency Enforcement Policy on Blue Signal Protection For Utility Workers

49 C.F.R. § 218.22

\(^{13/}\) The FRA had proposed that the following protections under (1) and (2) be provided, but they were suspended on May 15, 1995, 60 F.R. 30469:

(1) A single engineer must communicate directly, either by radio or by oral communication of equivalent integrity, with the crew of the train to be assisted.

(2) The crews of both trains must notify each other in advance of all moves to be made by their respective equipment. The crew of the train to be assisted must inform the single engineer that the train is secured against movement, and must not move the train or permit the train to move until authorized by the single engineer.
FLAG PROTECTION FOR TRAINS AND LOCOMOTIVES

Each railroad must have in effect an operating rule which meets the following requirements:

(a) The main tracks within yard limits may be used, clearing the time an approaching designated class train is due to leave the nearest station where time is shown. In a case of failure to clear the time designated class train, flag protection must be provided. In yard limits where main tracks are governed by block signal system rules, flag protection is not required. (b) Trains and engines, except designated class trains, within yard limits must be prepared to stop within one-half the range of visions but not exceeding 20 miles per hour, unless the main track is known to be cleared by block signal indications. (c) Within yard limits, movements against the current of traffic on the main track must not be made unless protected by train order, yard-master or other official under the same restrictions in (b) above.

Flag protection shall be provided: (a) when a train is moving on the main track at less than one-half the maximum authorized speed, flag protection against following trains on the same track must be provided by crew members by dropping off single lighted fuses at intervals that do not exceed the burning time of the fuses. (b) When a train is moving on main track at more than one-half the maximum authorized speed in which it may be overtaken, the crew members shall be responsible for providing protection and must take into consideration grade, curvature of track, weather conditions, sight, distance and relative speed of the trains. (c) When a train stops on the main track, flag protection against the following train on the same track must be provided as follows: a crew member with flagman's signals must immediately go back to the prescribed distance in timetable and place at least two torpedoes on the rail at least 100 feet apart and display at least one lighted fuse. He may then return one-half of the distance to the train where he must remain until he has stopped the approaching train or is recalled. When recalled, he must leave one lighted fuse. When the train departs, a crew member must leave one lighted fuse and until the train resumes speed not less than one-half the maximum authorized speed, he must drop off single lighted fuses at intervals that do not exceed the burning time. (d) If required by the railroad's operating rules, a forward crew member must protect the front of the train by immediately going forward at least the distance prescribed by timetable placing at least two torpedoes on the rail 100 feet apart, displaying one lighted fuse, and remaining at that location until recall.

Flag protection is not required if: (a) the rear of the train is protected by at least two block signals; (b) the rear of the train is protected by an absolute block; (c) the rear of the train is within interlocking limits; (d) a train order specifies that the flag protection is not required; (e) a railroad operates only one train at any given time.

49 C.F.R. §§ 218.31-218.37
OCCUPATIONAL SAFETY AND HEALTH ACT

The general duty of an employer under OSHA requires that a worker be provided a place of employment which is "free from recognized hazards that are causing or are likely to cause death or serious physical harm." If the workplace is unsafe, the OSHA is violated.

In addition to the federal railroad safety laws and regulations, railroad workers are covered under the various occupational safety and health laws. The OSHA law covers railroad workers where another federal agency has not exercised authority over the particular working condition involved. Therefore, it is necessary to determine whether the FRA issued a rule or regulation over a specific working condition. If not, the OSHA laws are applicable.

It should be kept in mind that all of the working conditions of a railroad worker are subject either to the railroad safety laws or the OSHA law. The intent is that there should be no gaps in coverage.

During the mid 70's the FRA considered adopting the federal OSHA standards as FRA standards. However, that rulemaking was terminated in 1978 and, instead, a Policy Statement was issued. That document explained what FRA considered to be within its jurisdiction, and what would continue to be enforced by the Department of Labor. The OSHA regulations cover Subparts A through Z. Each subpart will be identified, and where FRA has addressed the subject matter this will be discussed. In general, where the subject matter relates to operational safety (i.e. safe movement of equipment over rails), the FRA will exercise its jurisdiction. All other aspects will be enforced by the Department of Labor where the conditions are similar to those in any industry.

Subpart A — General

This sets out the overall purpose and scope of the OSHA regulations, and the procedures to be followed.

Subpart B — Adoption and Extension of Established Federal Standards

This part does not involve the railroad industry.

Subpart C — General Safety and Health Provisions

This allows access to employee exposure and medical records.

Subpart D — Walking Working Surfaces

OSHA regulations concerning working surfaces deal with such matters as ladders, stairways, platforms, scaffolds and floor openings. Generally, these regulations are applicable in railroad offices, shops, and other fixed work places. There are three principal exceptions to the rule. First, they would not apply with respect to the design of locomotives and other rolling equipment used on a railroad.
Second, FRA is responsible for the safe movement of rolling stock through railroad repair shops. OSHA regulations on guarding of open pits, ditches, etc., would not apply to inspection pits in locomotive or car repair facilities. Third, the OSHA regulations would not apply to ladders, platforms, and other surfaces on signal masts, centenary systems, railroad bridges, turntables, and similar structures or to walkways beside the tracks in yards along the right-of-way.

Subpart E — Means of Egress

By their own terms, OSHA regulations concerning egress do not apply to rolling equipment. However, the regulations do apply to the extent of the regulatory language to fixed railroad facilities, other than employee sleeping quarters covered by the Hours of Service Act.

Subpart F — Powered Platforms, Manlifts and Vehicle Mounted Work Platforms

OSHA regulations apply to the railroad industry. A work platform would be regulated by OSHA, even if mounted on an on-track vehicle. It should be noted the OSHA regulation does not apply to the vehicle on which such a platform is mounted. See 29 C.F.R. § 1910.67(b)(3). FRA is responsible for all vehicles that are utilized on track during the period of such usage.

Subpart G — Occupational Health and Environmental Control

These rules impose certain standards related to ventilation, occupational noise exposure, and radiation. The rules apply in the railroad industry, with the following exceptions.

First, the OSHA ventilation standards (29 C.F.R. § 1910.94) do not contain any provisions which address hazards growing out of railroad operations, as such. They have no application to locomotive cab or caboose environments, to passenger equipment, or to operational situations in yards or along the right-of-way.

Second, FRA is responsible for determining what exposure levels are permissible, what regulatory steps may be necessary in this area, if any, and what remedial measures are feasible. See e.g. 49 C.F.R. Part 210 and 40 C.F.R. Part 201; 45 U.S.C. 62 (a)(3).

Subpart H — Hazardous Materials

The transportation of hazardous materials by rail is governed wholly by Department of Transportation regulations (Chapter I, Title 49, Code of Federal Regulations). However, the OSHA regulations apply in those circumstances
where the Department of Transportation regulations do not apply (i.e. to the use,
handling and storage of hazardous substances in most work situations). To the
extent working conditions may be affected by both (1) the shipment and carriage
of hazardous materials and (2) the storage or use of such materials prior to their
introduction into the stream of transportation, FRA shall work with OSHA to
assure the coherent and comprehensive regulation of this subject matter.

Subpart I — Personal Protective Equipment

OSHA regulations concerning personal protective equipment apply, except to the
extent the general requirements might be read to require protective equipment
over hazards growing out of the railroad operations.

Subpart J — General Environmental Controls

This relates to sanitation, temporary labor camps, color codes for marking
physical hazards and specifications for accident prevention signs and tags. The
provisions concerning sanitation (29 C.F.R. §§ 1910.141, 1910.143) generally
apply to railroad work places. However, it should be noted that the regulations
themselves contain certain limited exclusions for "mobile crews" and "normally
unattended work locations as long as employees have transportation immediately
available to nearby toilet facilities." See 29 C.F.R. §§ 1910.141 (c)(i) and (ii);
1910.143(a)(1). Certain areas of FRA/OSHA jurisdictional overlap do exist. For
instance, under the Locomotive Inspection Act, FRA must ascertain whether a
locomotive and all its appurtenances are in proper condition and safe to operate.
See, in addition, 21 C.F.R. Part 1250 (Food and Drug Administration regulations
on Interstate Conveyance Sanitation).

Theoretically, OSHA standards concerning temporary labor camps (29
C.F.R. § 1910.142) apply to specified facilities except those
subject to FRA jurisdiction under section 2(a)(3) of the Hours of Service Act (45
U.S.C. 62(a)(3)).

OSHA regulations establishing a color code for physical hazards (29
C.F.R. § 1910.141) apply to hazards other than those arising out of the railroad
operations. Railroads are encouraged to use the code to identify hazards arising
out of railroad operations whenever practicable.

The OSHA specifications for accident prevention signs and tags do not
cover safety signs designed for railroads (29 C.F.R. § 1910.145(a)(1)).

Subpart K — Medical and First Aid; Subpart L- Fire Protection

The OSHA regulations apply here, except with respect to fire protection on
rolling stock. Although, FRA has not published specific "fire protection"
standards denominated as such. FRA standards for locomotive inspection and
maintenance contain provisions designed, in part, to prevent fires (49 C.F.R. Part 230). The Locomotive Inspection Act (45 U.S.C. §§ 22-34) requires FRA inspectors to make general determinations concerning whether locomotives are in "proper conditions and safe to operate in the service to which the same are put." In addition, the FRA Freight Car Safety Standards (49 C.F.R. Part 215) contain requirements which are designed to prevent overheated journals.

**Subpart M — Compressed Gas and Compressed Air Equipment**

The OSHA regulations apply except that (1) the Department of Transportation hazardous materials regulations control and shipment and transportation of compressed gas and (2) use of compressed gas in the course of railroad operations falls within FRA's current exercise of jurisdiction. The OSHA regulations contain an exclusion for compressed air machinery used on transportation vehicles (29 C.F.R. § 1910.169(a)(1)).

**Subpart N — Materials Handling Storage**

The OSHA regulations apply with two exceptions. First, the general requirements of 29 C.F.R. § 1910.176 have no application to the operations of railroads.

The second exception pertains to locomotive cranes and other on-track vehicles which are used for maintenance of way and other purposes. Locomotive cranes and other on-track vehicles used to haul other rail equipment are subject to the requirements of the Locomotive Inspection Act, which is enforced by FRA. The Safety Appliance Acts may also apply. (See 45 U.S.C. 8; 49 C.F.R. §§ 231.25, 231.26). OSHA has excluded locomotive cranes used in wrecking service from the coverage of its standards (29 C.F.R. § 1910.180(b)(1)).

**Subpart O — Machinery and Machine Guarding; Subpart P — Hand and Portable Powered Tools and Other Hand-used Equipment; Subpart Q — Welding, Cutting and Brazing; Subpart S — Electrical**

The OSHA regulations apply to railroads under subparts O through S. Therefore, the OSHA regulations apply to railroad shops and other work places. The one exception is that 29 C.F.R. § 1910.308(c)(2) (electrical standards) excludes rail rolling stock and electrified rail systems.
Subparts T through Y — Have No Application to the Railroads

Subpart Z — Toxic and Hazardous Substances

The OSHA regulations apply except with respect to the shipment or transportation of hazardous materials, which is controlled by the Department of Transportation hazardous materials regulations, and the regulation of air contaminants in locomotive cab and caboose environments. Specific FRA regulations bearing on the locomotive cab environment address cab ventilation (49 C.F.R. § 230.229(f)(2)) and exhaust gases (49 C.F.R. § 230.259). In addition, the Locomotive Inspection Act prescribes a general requirement that each locomotive be safe and in proper condition.

Construction Standards Section 1910.12 of OSHA's General Industry standards provides that the standards contained in 29 C.F.R. Part 1926 relating to construction work are adopted as regulations under section 6 of the OSHA Act and shall apply to every "employment" engaged in construction work. "Construction work" is broadly defined to include construction, alteration, and/or repair, including painting and decorating. To the extent that hazardous construction working conditions do not fall within FRA's exercise of authority relating to the safety of railroad operations, the OSHA standards apply.14/

29 U.S.C. §§ 651-678
29 C.F.R. §§ 1910-1919, 1926

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14/ The FRA, pursuant to the Rail Safety Improvement Act of 1988, was required to issue bridge safety standards for protection of maintenance of way employees. Those regulations are discussed in a separate heading.
HAZARDOUS MATERIALS

The laws and regulations governing hazardous materials transportation are currently in a state of transition. This period will likely continue for several years as the result of the issuance of several regulations by the Department of Transportation in Dockets HM-169, 175, 181, 197, 201, and the enactment by Congress in 1990 of the Hazardous Materials Transportation Uniform Safety Act. Both the regulations and the new statute contain a number of different effective dates spread out over a period of years. So as to eliminate as much confusion as possible, the above referenced rulemakings and the 1990 statute will be briefly summarized separately. The general discussion preceding each summary incorporates, as well, some of the provisions of the rulemakings and the 1990 law.

The Federal laws and regulations governing the transportation of hazardous materials, cover the manufacturers, shippers, carriers and contains manufacturers of all hazardous materials.

There are 10 parts to the hazardous materials regulations:

<table>
<thead>
<tr>
<th>Parts</th>
<th>Subject covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>171</td>
<td>This includes definitions, incident reporting requirements, a listing of sections, material incorporated by reference, and procedural requirements.</td>
</tr>
<tr>
<td>172</td>
<td>This contains a listing of hazardous materials in a table and various communications requirements for shipping paper descriptions, marking and labeling of packages, placarding of vehicles and bulk packagings, and emergency response communication.</td>
</tr>
<tr>
<td>173</td>
<td>This contains various hazard class definitions for classifying materials, lists the DOT packaging authorized for specific materials and references the appropriate sections of Parts 178, 179 and 180 when DOT specification packagings are required.</td>
</tr>
<tr>
<td>174-177</td>
<td>These contain requirements applicable to the various transport modes. Part 174 applies to transportation by rail.</td>
</tr>
<tr>
<td>178</td>
<td>This is addressed primarily to container manufacturers and sets out detailed construction specifications for all types of packagings.</td>
</tr>
<tr>
<td>179</td>
<td>This addresses specifications for tank cars.</td>
</tr>
</tbody>
</table>
This provides for requirements for the continuing qualification and maintenance of packagings.

Each hazardous material is identified in 3 ways as show below. In addition, some materials are listed by Packing Group.

<table>
<thead>
<tr>
<th>Identification</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proper Shipping Name</td>
<td>Liquified Petroleum Gas</td>
</tr>
<tr>
<td>2. Hazard Class or Division</td>
<td>2.1</td>
</tr>
<tr>
<td>3. Identification Number</td>
<td>UN1075</td>
</tr>
<tr>
<td>4. Packing Group(^{15/})</td>
<td>—</td>
</tr>
</tbody>
</table>

In a train each loaded placarded rail car carrying hazardous materials and each rail car immediately adjacent to it must be inspected by the carrier whenever the train is required to be inspected. Each loaded placarded tank car must be inspected by the carrier before acceptance at the originating points and when received in interchange. These inspections are required even though inspections (such as power brake) may not be required at interchange by other regulations. The inspection required is to see that the car is not leaking, and that air and hand brakes, journal boxes, and trucks are in proper condition for service. Rail cars containing Explosives 1.1 and 1.2 are also required to have inspection.

The train crew must have a document indicating the position in the train of each loaded placarded car containing hazardous material.

In general, placarded tank cars containing hazardous materials must be positioned in a train not less than the sixth car from the engine or occupied caboose. Cars placarded "radioactive" or "residue" must be separated from a locomotive or caboose by at least one non-placarded car. The regulations set forth the specific spacing permitted for cars containing particular types of hazardous materials. The table below gives greater detail of some of the placement requirements: \(^{16/}\)

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\(^{15/}\) Packing Groups are identified by a Roman Numeral I, II or III. "I" indicates the greatest degree of danger presented by the material. "II" is medium danger and "III" is minor danger. Materials in Hazard Class 2 and 7, and ORM-D materials do not have packing groups.

\(^{16/}\) See, e.g., 49 C.F.R. §§ 174.84 and 174.85 for specific placement requirements.
## Placement of HM Cars

<table>
<thead>
<tr>
<th>Car Type</th>
<th>Where Placed</th>
</tr>
</thead>
</table>
| Combustible Liquid  
Class "Keep away from food"  
Class 9 | No restrictions |
| Explosives (Division 1.1 and 1.2)  
Poisonous gas (Division 7.3, Hazard Zone A)  
Poisonous liquid (Division 6.1, Hazard Zone A) | Must not be nearer than 6th car from the engine or caboose;  
May be placed next to similarly placarded cars, but it cannot be next to car:  
— with different kind of placard,  
— open-top with shiftable load or protruding beyond the ends of the car,  
— loaded TOFC/COFC flatcar,  
— with operating automatic refrigeration temperature control equipment,  
— with internal combustion engine. |
| Radioactive (Class 7) | Cannot be next to:  
— engine,  
— any loaded, placarded car with a different type of placard,  
— undeveloped film,  
— an occupied caboose. |
| Loaded, Placarded tank car | Must not be nearer than 6th car from engine or occupied caboose;  
Cannot be next to:  
— "Radioactive" cars,  
— car placarded with square background,  
— cars with shiftable loads or protruding beyond the ends of the car,  
— internal combustion engine or temperature control equipment. |
| Tank cars with residue placard | Must be one car separation from engine or occupied caboose. |

The switching of certain placarded cars containing a white square background must not:  
1. Be allowed to move under its own momentum; or  
2. Be coupled into or struck by any other rail car with more force then is necessary to complete the coupling.  
3. Where track gradient makes handbrakes use necessary, (1) the brakes must be tested; (b) the cut of HM cars must wait until the previous cut has cleared the lead; and (c) any cut of cars following HM cars must wait until the placarded cut has cleared the lead.

There are additional standards relating to information required on waybills, reporting hazardous materials incidents, correcting violations, procedures for handling HM cars.

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17/ See 49 C.F.R. § 174.83 for specific rules covering switching of placarded cars.
leaking tank cars and leaking packages, marking, switching, and handling of placarded cars and various types of hazardous materials.

**Docket HM-181 - Hazard Communication, Classification and Packaging:**

On December 21, 1990, the Research and Special Programs Administration, in Docket No. HM-181 (55 Fed. Reg. 52402), made significant changes to the hazard communication, classification and packaging requirements outlined above. Each of the 10 separate parts of the regulations were amended. In general, the new regulations will be based upon performance standards, wherein the current rules were design specifications. This change was made in order to be consistent with the United Nations Recommendations concerning classification, hazard communication and packaging. The major features of the new rule are:

1. Formal changes, such as consolidation of the §§ 172.101 and 172.102 hazardous materials tables into one table and elimination of approximately 100 packaging specifications, should substantially reduce the volume of the regulations.

2. Standard international units (SI units) of measurement generally replace U.S. customary units of measurement. On an interim basis, U.S. customary units are included in parentheses following the SI units. (See § 171.6.)

3. Hazard class definitions are aligned generally with the U.N. Recommendations and use the same numerical nomenclature. (For example, "flammable solids" are "Division 4.1 materials," "flammable liquids" are "Class 3 materials." (Certain DOT hazard classes, such as combustible liquid and ORM-D would be retained.) (See subpart D of Part 173.)

4. Hazardous materials descriptions are aligned with the U.N. Recommendations, except in certain instances where shipping descriptions unique to the U.S. transportation system are retained. (See § 172.101.)

5. Hazard communication requirements for identifying materials which are poisonous by inhalation are made applicable to gases, in addition to liquids, to correct a safety deficiency in the regulations. (See § 172.203.)

6. Packaging requirements for a material are based on the Packing Group of the material, its vapor pressure and chemical compatibility between the packaging and the hazardous material.

7. Materials packaged under the IMDG Code generally are acceptable for inland transport away from a port area for the first time. (See § 171.12.)

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8. Non bulk packagings must be capable of withstanding a vibration test, in addition to the other performance tests, to address transportation rigors not taken into account by the U.N. tests. (See § 173.24a.)

9. Re-use of plastic and metal drums are linked to minimum thickness requirements, to ensure that these reused packagings are capable of withstanding the rigors of transportation. (Minimum thickness requirements would substitute for the lack of performance tests in the U.N. standards with regard to puncture resistance, abrasion resistance and metal fatigue.) (See § 173.28.)

10. For materials which are poisonous by inhalation, packaging provisions would be enhanced and, in some instances, made more restrictive.

11. Bulk packaging provisions are enhanced with regard to filling limits (i.e., outage requirements) and requirements for reclosing pressure relief devices for bulk packagings used for flammable or poisonous liquids. (See § 172.24b.)

12. To correct a shortcoming in the U.N. system, criteria are included for defining categories of gases which are poisonous by inhalation (Division 2.3). (See § 173.115.)

13. For ease of use, simplicity and to reduce the volume of the HMR, generic packaging sections replace, for the most part, material-specific packaging sections in part 173. For example, there is one non bulk packaging section (§ 173.202) for most Packing Group II liquids, rather than individual sections for poisons, flammables, corrosives, etc. Similarly, there is a series of generic packaging sections for bulk, related to the hazard characteristics of the material to be transported.


15. Packaging manufacturers are required to notify their customers in writing of any specification shortfalls on steps that the user must take (such as the procedure for closing a packaging after filling) to conform with the applicable specification. (See § 178.2).

16. Requirements for conduct of performance tests, including design qualification tests and periodic retests, are included in part 178 for all packagings manufactured to U.N. standards. (See § 178.601).

17. "Mix and Match" will be allowed.

RSPA will allow mixing of old and new U.N.-based hazard communication requirements during the transition period. This mixing will be allowed as follows:

- A package may be manufactured to the old regulations, even if marked and labeled under the new regulations;
- A package may be manufactured to the new regulations, even if marked and labeled under the old regulations;

- If either shipping names or identification numbers are identical, a shipping paper may display the old shipping description even if the package is marked and labeled under the new shipping description;

- If either shipping names or identification numbers are identical, a shipping paper may display the new shipping description even if the package is marked and labeled under the old shipping description;

- Either old or new placards may be used during the appropriate placarding transition period regardless of whether old or new shipping descriptions and package markings are used; and

- Either old or new handling requirements, including segregation and stowage, may be used during the applicable transition period.
The physical appearance of the placards are as follows:\textsuperscript{19/}

\begin{itemize}
\item \textbf{EXPLOSIVES} 1
\item \textbf{EXPLOSIVES} 1.4
\item \textbf{EXPLOSIVES} 1.5
\item \textbf{EXPLOSIVES} 1.6
\end{itemize}

Background color: orange
Symbol, text, numerals and border: black

\begin{itemize}
\item \textbf{OXYGEN} 2
\item \textbf{POISON GAS} 2
\end{itemize}

Background color: yellow
Symbol, text, numerals and border: black

\textsuperscript{19/} Wherever an * appears on the placards shown here, they must contain the compatibility designation as shown in the compatibility table in § 174.81.
NON-FLAMMABLE GAS
Background color: green
Symbol, text, numerals and border: white

FLAMMABLE GAS
Background color: red
Symbol, text, numerals and border:

FLAMMABLE
Background color: red
Symbol, text, numerals and border: white
The word "GASOLINE" may be used in the place of "FLAMMABLE"

COMBUSTIBLE
Background color: red
Symbol, text, numerals and border: white
On a COMBUSTIBLE placard with a white bottom the numerals must be in red or black.
The words "FUEL OIL" may be used in place of the word "COMBUSTIBLE"
FLAMMABLE SOLID
Background color: white with seven vertical red stripes
Symbol, text, numerals and border inner border: black

SPONTANEOUNSLY
COMBUSTIBLE
Background color: red in the lower half and white in the upper half.
Symbol, text, numerals and border: black

DANGEROUS WHEN WET
Background color: blue
Symbol, text, numerals and border: white

OXIDIZER
Background color: yellow
Symbol, text, numerals and border: black
ORGANIC PEROXIDE
Background color: yellow
Symbol, text, numerals and border: black

HARMFUL STOW AWAY FROM FOODSTUFFS
Background color: white
Symbol, text, numerals and border: black

POISON
Background color: white
Symbol, text, numerals and border: black

RADIOACTIVE
Background color: white
in the lower portion with a yellow triangle in the upper portion
Symbol, text, numerals and border: black
CORROSIVE
Background color: black in the lower portion with a white triangle in the upper portion
Text and numerals: white
Symbol and border: black

CLASS 9
Background color: white with seven black vertical stripes on the top half.
The lower half must be white with the class number 9 underlined.

DANGEROUS
Background Color: black print on white background with red triangles
The following table summarizes the placards, placard color and symbol for each class of hazardous material:

<table>
<thead>
<tr>
<th>CLASS</th>
<th>PLACARD COLOR</th>
<th>PLACARDS</th>
<th>SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>Orange</td>
<td>Explosives</td>
<td>Bursting Ball</td>
</tr>
<tr>
<td>Explosives</td>
<td>Div. 1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div. 1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div. 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div. 1.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div. 1.5</td>
<td></td>
<td></td>
<td>Words: Blasting Agents</td>
</tr>
<tr>
<td>Div. 1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 2</td>
<td>Red</td>
<td>Flammable Gas</td>
<td>Flame</td>
</tr>
<tr>
<td>Gasses Div. 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div. 2.2</td>
<td>Green</td>
<td>Nonflammable Gas</td>
<td>Cylinder</td>
</tr>
<tr>
<td>Special placard Div. 2.2</td>
<td>Yellow</td>
<td>O2</td>
<td>Burning Ball</td>
</tr>
<tr>
<td>Div. 2.3</td>
<td>White</td>
<td>Poison Gas</td>
<td>Skull &amp; Bones</td>
</tr>
<tr>
<td>Class 3</td>
<td>Red</td>
<td>Flammable</td>
<td>Flame</td>
</tr>
<tr>
<td>Flammable &amp; Combustible Liquids</td>
<td></td>
<td>Combustible</td>
<td>Flame</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gasoline</td>
<td>Flame</td>
</tr>
<tr>
<td>Class 4</td>
<td>Red Stripe</td>
<td>Flammable Solid</td>
<td>Flame</td>
</tr>
<tr>
<td>Flammable Solids Div. 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spontaneously combustible Div. 4.2</td>
<td>White Top Red Bottom Diamond</td>
<td>Spontaneously Combustible</td>
<td>Flame</td>
</tr>
<tr>
<td>Dangerous when hot Div. 4.3</td>
<td>Blue</td>
<td>Dangerous When Wet</td>
<td>Flame</td>
</tr>
<tr>
<td>Class 5</td>
<td>Yellow</td>
<td>Oxidizer</td>
<td>Burning Ball</td>
</tr>
<tr>
<td>Oxidizers Div. 5.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organic Peroxide Div. 5.2</td>
<td>Yellow</td>
<td>Organic Peroxide</td>
<td>Burning Ball</td>
</tr>
<tr>
<td>Class 6</td>
<td>White</td>
<td>Poison</td>
<td>Skull &amp; Cross bones</td>
</tr>
<tr>
<td>Poisonous Div. 6.1 (PG I&amp;II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poisonous Div. 6.1 (PG III)</td>
<td>White</td>
<td>Keep Away From Food</td>
<td>Wheat &amp; X</td>
</tr>
<tr>
<td>Infectious Substances</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 7</td>
<td>Yellow Top</td>
<td>Radioactive</td>
<td>Propeller</td>
</tr>
<tr>
<td>Radioactive</td>
<td>White Bottom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diamond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 8</td>
<td>White Top</td>
<td>Corrosive</td>
<td>Test Tube &amp; Hands</td>
</tr>
<tr>
<td>Corrosive</td>
<td>Black Bottom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diamond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 9</td>
<td>Vertical Black and White Striped Top</td>
<td>Class 9</td>
<td>None</td>
</tr>
<tr>
<td>Misc. Hazardous Material</td>
<td>White bottom Diamond</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed loads of hazard classes</td>
<td>Upper and Lower Triangles Red on White Background</td>
<td>Dangerous</td>
<td>None</td>
</tr>
</tbody>
</table>

**HM-175A CRASHWORTHINESS PROTECTION REQUIREMENTS FOR TANK CARS:**

1. Regarding the head protection systems for existing tank cars with capacities less than 18,500 gallons, RSPA has required that there be full-head protection. Tank cars transporting Division 2.1 materials must be modified within 5 years, the
remainder of the cars would be modified in ten years. Regarding the transportation of Division 2.2 materials, all new tank cars will require full-head protection, as well as existing tank cars currently without head protection. If the existing tank cars have a half-head protection, it will not need to be modified. A phased in 10 year modification program is required for the existing tank cars transporting Division 2.2 materials. Division 2.1 gases are flammable gases, and Division 2.2 gases are non-flammable, and oxygen.

Existing tank cars without head protection are required to have a full-head protection installed when used to transport a Class 2 material.

2. Full-head protection is required for tank cars constructed from aluminum or nickel plate, when used to transport any hazardous material. These will be phased in during a 10 year modification program.

3. Thermal protection for Class 2 material is required when a thermal analysis of the tank car lading showed that a release would occur other than through the safety relief valve when the tank car is subjected to either a 100 minute pool fire or a 30 minute torch fire. Additionally, a shipper or owner of a Class 2 material must perform an analysis of the characteristics of the material and the thermal resistance capabilities of the tank car.

Regarding a tank car constructed from aluminum and nickel plate, the owner of such tank car will be required to perform an analysis of the tank car, and if a release would occur, other than through the safety release valve, a thermal protection system will be required. There is a 10 year phase in period for existing tank cars.

4. For tank cars transporting a material which is poisonous by inhalation, it shall be an insulated DOT 105S tank car or a non-insulated, but thermally protected, DOT 112 or 114 tank car having a metal jacket.

5. The construction of new tank cars having an internal self-energized manway located below the liquid level of the lading is prohibited.

6. Effective July 1, 1996, the use of non-pressure tank cars will be prohibited for transporting materials poisonous by inhalation. These type of tank cars are primarily DOT 111A, which have known to be highly susceptible to rupture in a railroad derailment.

7. The use of 105A 100W, 111A 100W4, 112A 200W, and 114A 340W tank cars for transporting ethyl chloride and ethyl methyl ether will be prohibited. Also, the use of 111A non-pressure tank cars for Class 2 (compressed gas) materials such as ammonia solutions, ethyl amine, ethyl chloride, ethyl methyl ether, and ethylene oxide is prohibited.

8. The final rule permits 3 levels of protection for the types of discontinuity (i.e., bottom outlets that extend 1 inch or more; blind flanges and washouts that extend 2 & 5/8 inches or more; and sumps and internally closed washouts that extend 5 inches or
more), and requirements for the protection of each valve and fitting from mechanical damage.

9. To retard rust or corrosion, the final rule requires a protective coating on a carbon steel tank shell and tank jacket. In addition, protective coatings for all new tank cars, and for existing tank cars are required when a repair to the tank car necessitates the complete removal of a jacket.

10. The transportation of halogenated organic compounds is restricted to transportation of such products in only DOT 112S 200W (non jacketed tank cars) constructed from AAR TC-128 normalized steel. (The older steel specification, such as ASTM A212 grade B has less puncture resistance than the steels currently in use, such as TC-128).

11. In general the new regulations allow 5 years for modification for the tank cars which are built after the effective date of the final rule. For tank cars built prior to the effective date, the phase-in period is 10 years--at least 50% of the fleet must be in conformance within the first 5 years, and the balance in the second 5 years. However, regarding tank cars transporting division 2.1 material, the tank cars must be modified within 5 years (50% within 2 & 1/2 years).

HM-201 DETECTION AND REPAIR OF CRACKS, PITS, CORROSION, LINING FLAWS AND OTHER DEFECTS OF TANK CAR TANKS:

This rulemaking sets out the requirements for testing, inspection and repair of various defects in tank cars. It is recognized that many tank car defects are not routinely detected. Therefore, RSPA has issued this rulemaking.

1. The FRA has found that cracks in tank cars may reach a critical size within about 400,000 miles of railroad service. Tank cars travel at an average of about 18,000 miles per year. Therefore, RSPA proposed an inspection and test interval of 10 years, which would allow for two opportunities to inspect the equipment before predicted failure. Also, the rule covers corrosion and required inspection and testing schedules. The final rule requires that the tank car industry will not have to comply until 24 months after issuance of the rule for tank cars without metal jackets, and 48 months for cars having a metal jacket or a thermal protection system. Before the compliance date, tank cars may be given an inspection and hydrostatic test in accordance with the then current requirements. After the compliance date, each tank car must be given an inspection and test according to the requirements contained in this final rule or before the next scheduled tank hydrostatic pressure test date.

2. The FRA has recognized that some high-mileage tank cars travel in excess of 200,000 miles before there would be a requirement for the first periodic inspection. Therefore, FRA intends to assess whether there is a necessity to require owners to retain car mileage records and to inspect the tank cars before 200,000 miles of service.
3. Bottom shelf of fusion welded tank cars shall be inspected periodically by appropriate non-destructive testing techniques, such as optically aided visual inspections, ultrasonic radiographic, magnetic particle, and dye penetrant testing methods, in lieu of a hydrostatic pressure test.

4. A leakage test shall include all piping, with all valves and accessories in place and operative, except that during the test any venting devices set to discharge at less than the test pressure must be removed or rendered inoperative. The test pressure shall be maintained for at least 5 minutes at a pressure of not less than 50% of the tank test pressure. The leakage test is to be conducted at 30 psig for tank cars having a test pressure less than or equal to 200 psig and a leak test at 50 psig for tank cars having a tank pressure greater than 200 psig.

5. A structural integrity inspection and test is required in areas known to develop cracks. Such inspection and test will include transverse fillet wells greater than a 1/4 inch within 48 inches of the bottom longitudinal centerline, the termination of longitudinal fillet wells greater than 1/4 inch within 4 feet of the bottom longitudinal centerline, and all tank shell butt wells within 2 feet of the bottom longitudinal centerline. It is intended that the inspection be limited to the known areas of crack initiation.

6. Regarding service-life shell fitness, there is no overall limit on the amount of surface area with localized reduced shell thickness; rather, such limitations will apply only to the top shell of the tank and areas that are separated by at least 16 inches. The thickness deduction table is also modified to differentiate between corrosion and mechanical damage. Downrating is permissible and a tank car owner may mark a tank as meeting a less stringent specification because its shell thickness no longer conforms to the marked specification. For example, a 112 type tank car may be downrated to a 111. The procedure for conducting thickness measurements throughout the tank shell is left to the car owners written maintenance plans.

7. Owners of linings and coatings in tank cars must determine the periodic inspection intervals and inspection technique for the lining and the coating, based on the owner's knowledge of the material used.

8. Specific requirements for the inspection of thermal protection systems, tank head puncture resistance systems, coupler vertical restraint systems, and devices used to protect discontinuities are set out. If, after an inspection, one or more of these systems do not conform to the applicable requirements, renewal or repair of the system is necessary.

9. Each tank car facility is required to establish a Quality Assurance Program to detect non-conformities during the manufacturing, repair, or inspection and test process. The QAP will require the tank car repair facility to develop a means to detect any non-conformity with the regulations.

10. Prior regulations required the shipper to inspect a tank car before releasing it into transportation in order to ensure that closures are in a tool tight secure condition. The final rule creates a rebuttable presumption standard aimed specifically at loose
closures on tank cars. That is, if a loose closure is discovered it is presumed that it was not designed properly or it was not tightened properly.

**HM-169A Compatibility with Regulations of the International Atomic Energy Agency:**

The purpose of this regulation is to harmonize the hazardous materials regulations with those of the International Atomic Energy Agency. In general, the final rule requires written radiation protection programs, revisions to the definition and packaging for low specific activity radioactive materials, and requires the use of the International System of Units for the measurement of activity in a package of radioactive material.

1. The Environmental Protection Agency has guidelines providing for different limits for radiation exposure for organs and parts of the body. This rule imposes requirements only on the whole body regarding radiation doses received due to exposure to external sources of ionizing radiation.

2. Any radioactive materials transportation activity involving handling packages with a transport index (which identifies exposure limits for those handling radioactive materials) totaling 200 or more in one year is a threshold condition which would require a hazardous materials employer to implement a radiation protection program. There is an exception which allows a qualified radiation protection specialist to evaluate the doses, and if the evaluation shows that no worker would be expected to receive a dose of 500 millirem in one year, then a radiation protection program is not required. Offerors and carriers subject to the radiation protection program are required to develop and implement a written radiation program that prohibits a person from receiving an occupational exposure (dose) of 1.25 rem in any 3 month period or 5 rem in any 12 month period.

3. There is a requirement for education of workers concerning the health risk of exposure to radiation; training in regulatory requirements and procedures to control exposure levels and doses; and management and supervision of radiation protection activities. In addition, the requirements include limits on exposure to pregnant females and persons under the age of 18, plus record keeping.

4. It is made clear that the requirements in the regulation apply to both offerors and carriers of radioactive material.

5. Any radiation protection program already in place and approved by an appropriate Federal or State agency is deemed adequate to meet the radiation protection requirements of the rule.

6. Regarding the low specific activity material and surface contaminated objects, there is a limit on the external radiation level at 3 meters from the unshielded contents of most of the packages.

7. For international shipments the International System of Units (SI) shall be used to describe the activity of a package of radioactive materials. For domestic

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shipments, shipping papers and labels may contain either SI units or the combination of SI and customary units. The effective date of this provision is April 1, 1997.

8. The table which sets the maximum activity of a special form of radioactive material permitted in a certain package has been expanded by nearly 100 entries to include all radionuclides.

9. The final rule has established a single set of criteria for all packages of fissile materials.

10. All packages of radioactive materials are required to meet general design requirements. They must be designed for ease of handling and proper restraint during shipment, and be free of protuberances, easily decontaminated, capable of withstanding the effects of vibration during transport, and also meet reduced pressure and temperature requirements.

HM-169L EDITORIAL CORRECTIONS AND CLARIFICATION’S:

In general, this rule makes technical corrections and minor regulatory changes. For example, the definition of a HazMat employee and employer is revised to include persons who are involved in the manufacturing of hazardous materials packages. Also, one section of the hazardous materials regulations is revised to clarify the process of securing tank cars after unloading by allowing innovative methods to meet the requirements.

HM-197 HAZARDOUS MATERIALS IN COFC/TOFC SERVICE:

This rule establishes standards for transporting portable tanks containing hazardous materials in COFC/TOFC service without obtaining prior approval from the FRA.

1. The FRA’s methods for approving the transportation of hazardous materials in COFC and TOFC has been adopted, but eliminates any approval process.

2. Transport vehicles and freight containers containing packages of hazardous materials must be designed and loaded so that it would not rupture or become damaged under conditions normally incident to transportation.

3. Portable tanks are not allowed to be placed under or on top of another portable tank or freight container, which would create a double stack configuration. There is an exception which would allow the movement of cargo tanks on flat cars and work trains when necessary to respond to a hazardous materials release.

RULEMAKING PROCEDURES:

Effective July 15, 1996, RSPA promulgated a new streamlined procedure for
issuing regulations. It is known as the Direct Final Rule Procedure. It provides that following a notice and opportunity to comment, a proposed rule will become automatically effective on a specified date without further publication of the text of the rule, if RSPA does not receive an adverse comment or notice of intent to file opposition to the proposed rule.

AVAILABILITY OF RSPA DECISIONS:

In a notice dated September 14, 1995, RSPA stated that it would make available decisions on appeal in enforcement cases under the hazardous materials transportation law. Previously, these decisions were not available to the public.

HAZARDOUS MATERIALS TRANSPORTATION UNIFORM SAFETY ACT OF 1990:

In 1990 Congress made significant changes in the hazardous materials laws. A summary of the sections specifically covering railroad transportation follows.

Section 4. Federal Regulations Governing Transportation of Hazardous Materials

This section essentially rewrites the existing law concerning regulatory authority of the Secretary. The most notable changes occur in the definition of the Federal scope of regulation. For example, it establishes complete Federal preemption in certain aspects of regulation.

After 2 years no State or political subdivision may establish, maintain, or enforce regulations that are not the same as the Federal regulations in 5 specific regulatory areas listed below.

A State may petition the Secretary for authority to establish, maintain, and enforce a law, regulation, rule, standard, or order concerning any aspect set forth below for which the Secretary has not issued a regulation, rule or standard. The Secretary may grant such authority, if it is determined that it is necessary, to eliminate or reduce an essentially local safety hazard, will contribute to safety, and will not unduly burden interstate commerce.

The five general areas which are preempted by Federal regulation unless a state has a regulation which is the same as the Federal regulation are (1) the designation, description and classification of hazardous materials; (2) the packaging, handling, labeling, marking and placarding of hazardous materials; (3) shipping documents; (4) reporting of release of hazardous materials; (5) the whole process of designing, manufacturing, fabricating, marking, maintaining, reconditioning, repairing and testing of all packages or containers used in the transportation of hazardous materials.

Concerning the question of document content and placement in vehicles transporting hazardous materials, the section requires the Secretary to establish requirements specifying the type and the location of the material in the vehicle, and emergency procedures.

**Section 5. Misrepresentation and Tampering**

Section 5 adds a new section (e) and (f) to section 105 of the HMTA. New subsection (e) prohibits the misrepresentation of the fact that a package or container is safe, certified or in compliance with relevant regulations, or that a hazardous material is present when in fact it is not.

New subsection (f) provides that no one shall alter, remove, deface, destroy or otherwise tamper with any marking, labeling, or description in a document, or any package, container or vehicle used for the transportation of hazardous materials.

**Section 6. Disclosure**

This section requires that each person who offers a hazardous material for transportation in commerce, shall provide the carrier who is providing such transportation, any shipping paper required by the Secretary for the carrier to maintain on the hazardous materials vehicle. The shipping paper shall be kept in a location specified by the Secretary. The Secretary shall specify the contents of the shipping paper. This section also requires that any person who transports a hazardous material, in the event of an incident, shall immediately disclose the information on the hazardous material being transported to the emergency response authorities.

**Section 7. Handling of Hazardous Materials**

This section requires the Secretary, within one year, to issue requirements for hazardous materials employers to train their employees involved in all aspects of hazardous materials transportation and emergency preparedness for responding to hazardous materials accidents or incidents.

The training regulations may allow for different training for different classes or categories of hazardous materials and hazardous materials employees.

The Secretary, in issuing the training regulations, is required to consult with the EPA Administrator and the Secretary of Labor, to ensure that the training requirements do not duplicate existing OSHA regulations relating to hazardous waste operations and emergency response and EPA regulations relating to worker protection standards for hazardous waste operations.

Each hazardous materials employer shall certify that his or her hazardous materials employees have knowledge of, and have been tested on appropriate areas of responsibility including one or more of nine areas. The nine are:

(A) Recognition and understanding of the DOT hazardous materials
classification system;

(B) Use and limitations of the DOT hazardous materials placarding, labeling, and marking systems;

(C) General handling procedures, loading and unloading techniques, and strategies to reduce the probability of release or damage during or incidental to transportation of hazardous materials;

(D) Health, safety, and risk factors associated with hazardous materials and their transportation;

(E) Appropriate emergency response and communication procedures for dealing with accidents and incidents involving hazardous materials transportation;

(F) Use of the DOT Emergency Response Guidebook and recognition of its limitations or use of equivalent documents and recognition of their limitations;

(G) Applicable hazardous materials transportation regulations;

(H) Personal protection techniques; and

(I) Preparation of shipping documents for transportation of hazardous materials.

Section 8. Hazardous Materials Transportation Registration; Motor Carrier Safety Permits.

This section covers registration. It requires persons engaged in one or more listed activities to file a registration statement with the Secretary. The activities are:

(B) Transporting or causing to be transported or shipped in a commerce a hazardous material in bulk or tank having a capacity of 3500 or more water gallons, or more than 468 cubic feet.

(C) Transporting or causing to be transported or shipped in commerce 5,000 pounds or more of a hazardous material for which placarding is required in accordance with the regulations under this title.

Section 12. Penalties

This section amends the civil penalty section to extend it to violations of orders issued by the Secretary. The fines are increased from $10,000 to "up to $25,000 and not less than $250".

21/ On February 28, 1991, RSPA issued final regulations covering this matter.
A person is subject to a fine under the Hazardous Materials Transportation Act only if he/she acts "knowingly". A person is considered to have acted "knowingly" if:

(a) such person has actual knowledge of the facts giving rise to the violation, or

(b) a reasonable person acting in the circumstances and exercising due care would have such knowledge.

A person who knowingly violates the tampering section or willfully violates other provisions of the Hazardous Materials Transportation Act, or an order or regulation issued under this title, shall be fined under the U.S. Criminal Code or imprisoned for not more than 5 years, or both.

Section 13. Relationship to Other Laws

This section establishes the preemption standards for state laws. This section must be read in connection with sections 4 and 30. Section 4 requires that the states must adopt the same regulation as the federal requirements in the whole process of packaging, shipping documents and reporting of hazardous materials. Section 30 makes it clear that the intent of this law was not to change any of the rights that the States may have under the Federal Railroad Safety Act to adopt laws and regulations covering rail safety.

Any requirement of a State or political subdivision is preempted unless otherwise authorized by laws if (1) compliance with both the requirements of this title and the requirements of the State or political subdivision is not possible, or (2) if application and enforcement of the requirements of the State or political subdivision creates an obstacle to application and enforcement of the requirements of this title or its regulations.

Any person affected by an existing requirement of a State or political subdivision may apply to the Secretary for a determination of whether or not such requirement is preempted.

No person who applies to the Secretary for a preemption determination may seek relief in any court until the Secretary has taken final action or until 180 days after filing with the Secretary, whichever is earlier.

The Secretary shall publish notice of application filings in the Federal Register.

Nothing in this section prevents a person from seeking a preemption determination in a court in lieu of applying to the Secretary.

The Secretary may waive preemption of any requirement which has been determined to be preempted either by the Secretary or in a Court, if (1) the requirement affords equal or greater protection to the public, and (2) does not unreasonably burden

22/ See footnote 18.
commerce. This does not apply to subsection (e).

Any party to an application for determination of preemption or a waiver of preemption determination, who is adversely affected by the Secretary's decision, may file a petition for a judicial review in the appropriate U.S. district court within 60 days after the Secretary's final decision.

Preemption of the uniform subject matters (classification, packaging, handling, marking, documentation, notification, and highway routing) are not subject to a determination proceeding, or an application for waiver of preemption. This section also applies to the registration requirements in Section 8.

Section 14. Funding

This section authorizes appropriations of $13 million for FY '91, $16 million for FY '92, and $18 million for FY '93. The Secretary may credit money received from public and private entities for expenses incurred by DOT in providing training.

Section 15. Transportation of Certain Highly Radioactive Materials

The Secretary is required to undertake a study comparing the safety of using trains operated exclusively for transporting high-level radioactive waste and spent nuclear fuel with the safety of using other methods of rail transportation for such purposes. The Secretary shall report the results of the study to Congress not later than one year from date of enactment.

Within 24 months after the date of enactment, taking into consideration the findings of the rail study, the Secretary shall amend existing regulations as may be appropriate for the transportation of high-level radioactive waste and spent nuclear fuel.

The Secretary shall, within 12 months after date of enactment, undertake a study to determine which factors, if any, should be taken into consideration by shippers and carriers in order to select routes and modes which would enhance overall public safety related to the transportation of high-level radioactive waste and spent nuclear fuel. The study shall include comparison of the superstructure conditions of the highways, rail beds, and waterways.

Section 16. Inspectors

In FY 1991, the Secretary shall employ an additional 30 hazardous materials safety inspectors above the number authorized for FY '90 in the aggregate for the FRA, FHWA, and RSPA. The activities of ten such additional inspectors shall focus on promoting safety and the transportation of radioactive materials.

The inspectors activities shall include the inspection at the point of origin of shipments of high-level radioactive waste or nuclear spent fuel, and the inspection to the extent possible of other radioactive materials.

Of the ten additional inspectors which are authorized to focus on radioactive
materials, not less than one shall be allocated to RSPA, not less than three to the FRA, and not less than three to the FHWA. The remaining shall be allocated at the discretion of the Secretary.

**Section 18. HazMat Employee Training Grant Program**

This section establishes a grant program for training private sector hazardous materials employees. The grants under this section shall be administered by the National Institute of Environmental Health Sciences.

The grants shall be awarded to nonprofit organizations which demonstrate expertise in implementing and operating training and education programs for HazMat employees.

Funding shall be available in the amount of $250,000 per fiscal year for each fiscal years 1993 through 1998.

**Section 19. Railroad Tank Cars**

This section prohibits any railroad tank car manufactured before January 1, 1971 to be used in commerce for any Class A or B explosives, any hazardous material toxic by inhalation or any other hazardous materials so designated by the Secretary that should be subject to this requirement, unless the air brake equipment support attachments have been retrofitted to comply with 49 C.F.R. § 179.100-16 and § 179.200-19.

No railroad tank car constructed before January 1, 1971 may be used for the transportation in commerce of any hazardous material after July 1, 1991, unless the airbrake equipment support attachments are in compliance.

**Section 21. Railroad Tank Car Study**

This section requires the Secretary to enter into a contract with a disinterested expert body for a study of:

1. the railroad tank car design process, including specifications development, design approval, repair process approval, repair accountability, and the process by which designs and repairs are presented, weighted, and evaluated.

2. railroad tank car design criteria, including whether head shields should be installed on all tank cars which carry hazardous materials.

The contractor shall make recommendations as to whether public safety considerations require greater control by the Secretary with respect to railroad tank car design process, especially in the early stages.

The Secretary shall report the results of the study in recommendations to Congress within one year from date of enactment.
Section 25. Improvements To Hazardous Materials Identification Systems

The Secretary is required to initiate a rulemaking within 30 days after the date of enactment to develop methods of improving the current system of identifying hazardous materials being transported in vehicles in order to safeguard the health and safety of emergency responders and the public in general.

The primary purposes of the rulemaking procedure are to determine methods of improving the current system of placarding vehicles transporting hazardous materials and to determine methods for establishing and operating a central reporting system and computerized telecommunications data center.

This section further specifies methods to be considered by the Secretary under the rulemaking proceeding on placards and requires the completion of the proceeding within 19 months after date of enactment, and the issuance of a final rule within 30 months after the date of enactment.

The Secretary shall within 30 days after the date of enactment enter into arrangements with the National Academy of Sciences (NAS) to conduct a study of the feasibility and necessity of establishing and operating a central reporting system and computerized telecommunication data center for identifying hazardous materials being transported and for providing information to facilitate responses to accidents and incidents involving the transportation of hazardous materials.

In conducting the study, the Secretary is to request that the NAS, consult with the Federal agencies, shippers and carriers of hazardous materials manufacturers of computerized telecommunications systems, state and local emergency preparedness organizations (including firefighters and police) and appropriate international organizations. The study is to be completed within 19 months after the date of enactment.

There is $350,000 appropriated for the study.

There are 11 additional purposes listed for both the rulemaking proceeding and the study with respect to the central reporting system and computerized telecommunications data center, including whether such a system should be established, estimated costs, methods for financing, projected safety benefits, etc.

Not later than 25 months after date of enactment the Secretary shall review the report of NAS and the results of the rulemaking proceeding and submit a report to Congress, together with any recommendations concerning the establishment and operation of such a system.

In conducting the review and preparing the report, the Secretary shall give substantial weight to the recommendations of the NAS. If the Secretary does not include in the report a recommendation for implementation of proposals by the NAS, the Secretary shall state the reasons.
Section 26. Continually Monitored Telephone Systems

The Secretary is required to initiate a rulemaking within 90 days on the feasibility, necessity and safety benefits of mandating carriers of hazardous materials to maintain continually monitored telephone systems that provide emergency response information and assistance. The proceeding will decide what, if any, segments of the transportation industry should have such systems. The proceeding shall be finalized in 30 months.

Section 27. Shipper Responsibility Report

This provides for a report by the Secretary on the safety benefits of shared shipper/carrier liabilities where the shipper has utilized a carrier having an unsatisfactory or conditional safety rating.

Section 28. State Participation in Investigation and Surveillance

This section provides funding for paying state inspectors who perform railroad safety inspections under the Federal Railroad Safety Act. Five million dollars is authorized to be appropriated for carrying out state inspection requirements for each fiscal year FY '91 through '93.

Section 29. Retention of Markings and Placards

Not later than 18 months after the date of enactment, the Secretary of Labor under the OSHA law shall issue standards requiring that all markings, placards and labels on anything containing a hazardous material be retained until the hazardous material has been removed.

Section 30. Relationship To Federal Railroad Safety Act of 1970

Nothing in this act shall be construed to alter, amend, modify or otherwise affect the provisions of the Federal Railroad Safety Act.

REGULATIONS COVERING HAZARDOUS MATERIAL TRAINING FOR RAILROAD EMPLOYEES

A railroad may not transport a hazardous material by rail unless each of its hazardous materials employees involved in that transportation is trained as required by these regulations.

Training as used in these regulations means a systematic program that ensures a HazMat employee has familiarity with the general provisions of the regulations; is able to recognize and identify hazardous materials; has knowledge of specific requirements applicable to the functions performed by the employee; and has knowledge of emergency response information, self protection measures and accident prevention methods and procedures.
The specific training shall include the following:

1. **General awareness/familiarization training**

   Each HazMat employee shall receive general awareness/familiarization training designed to provide familiarity with the requirement of these regulations and enable the employee to recognize and identify hazardous materials.

2. **Function-specific training**

   Each employee shall receive function-specific training concerning requirements of these regulations which are applicable to the functions the employee performs.

3. **Safety training**

   Each employee shall receive safety training concerning --(a) emergency response information; (b) measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed, including specific measures the HazMat employer has implemented to protect employees from exposure; and (c) methods and procedures from avoiding accident.

   Training conducted by railroads to comply with hazard communication programs required by OSHA or EPA to the extent that such training addresses the training specified in these regulations, may be used to satisfy the training requirements.

   An employee who changes job functions shall complete training in the new job function within 90 days after the change. If the employee performs new hazardous materials job functions prior to the completion of the training required, it must be performed under the supervision of a properly trained and knowledgeable HazMat employee.

   A HazMat employee shall receive recurrent training at least once every three years.

   The railroad is required to maintain a record of the training of each employee.

49 U.S.C. §§ 5101-5127
49 C.F.R. Parts 107, and §§ 174.1-174.840
NOISE EMISSION STANDARDS

Locomotive Under Stationary Conditions

Locomotives built prior to December 31, 1979, shall not permit sound levels in excess of 93 dba at any throttle setting except idle or in excess of 73 dba at idle when measured 100 feet from the center of the locomotive.

Road locomotives built after December 31, 1979, shall not produce sound levels in excess of 87 dba at any throttle setting except idle, or in excess of 70 dba at idle. Switcher locomotives are subject to the same rule.

Locomotives Under Moving Conditions

Road locomotives manufactured before December 31, 1979, shall not produce sound levels in excess of 96 dba when moving.

Locomotives manufactured after December 31, 1979, may not produce sound levels in excess of 90 dba.

Switcher locomotives built before December 31, 1979, shall not produce sound levels in excess of 90 dba when moving.

Rail Cars

Rail cars shall not produce sound levels in excess of 88 dba at speeds up to 45 miles per hour or 93 dba at speeds greater than 45 miles per hour.

Retarders

Retarders shall not exceed a sound level of 83 dba. This applies only to active retarders, not inert retarders.

Coupling Operations

Coupling operations shall not exceed a sound level of 92 dba.

In general, the measurements will be at a distance of 100 feet from the equipment or from the center line of any section of the track having less than a two degree curve (or a radius of curvature greater than 2865 feet). The specific methods of measuring the sound are set forth in the regulations.

42 U.S.C. § 4916
49 C.F.R. Parts 172 & 174
FEDERAL EMPLOYERS LIABILITY ACT

FELA provides the exclusive remedy for an injured railroad employee. A railroad is liable as long as there is any negligence by the railroad, however slight. In addition, an employee is not prevented from recovery by the fact that he knew of a hazardous condition and assumed the risk of injury. If an employee is found to be partly responsible for his injury, i.e., contributorily negligent, this does not prevent recovery. His damages are simply reduced in proportion to the amount of negligence for which the employee is responsible. For example, if the jury found that the employee was 50% responsible for his injuries, he will be awarded only 50% of what he otherwise would have received. Contributory negligence is not chargeable against an employee if he is injured or killed by reason of a violation of any statute or regulation enacted for the safety of employees.

A lawsuit for recovery of damages against a railroad must be brought within three years from the date of accident. If third-parties are also going to be sued, the applicable state statute of limitation applies to such parties.

If you have been injured and have any questions concerning your legal rights under the FELA, you should contact the designated legal counsel in your area for assistance.

DISCRIMINATION AND HARASSMENT

A railroad may not discharge or in any manner discriminate against an employee who has (1) filed any complaint or instituted or caused to be instituted any proceeding under or related to the enforcement of the federal railroad safety laws or (2) testified or is about to testify in any such proceeding.

Any disputes, grievance, or claim arising out of this section shall be handled under the same procedures of the Railway Labor Act (i.e. P.L. Board). Such claim shall be expedited and must be resolved within 180 days. For any violation, the Board shall award back pay and order reinstatement. The Board may award punitive damages up to $20,000 in situations where the employee has not been discharged or suspended and no other remedy is available.

The Secretary shall not disclose the name of an employee who has provided information concerning alleged violations by a railroad. The person's name may be disclosed to the Attorney General only if the government sues the railroad seeking a fine for the alleged violation.

(See 49 CFR 225.33 regarding intimidation in reporting accidents/incidents.)

49 U.S.C. § 20109
NO REQUIREMENT TO WORK IF EXPOSED TO IMMINENT DANGER

A railroad may not discharge or in any manner discriminate against an employee for refusing to work when confronted by a hazardous condition if (a) the refusal is made in good faith and no reasonable alternative to refusal to work is available; and (b) the hazardous condition is of such a nature that a reasonable person would conclude that:

1. The condition presents an imminent danger of death or serious injury; or

2. There is insufficient time to eliminate the danger through resort to regular statutory channels.

and (c) the employee, where possible, has notified the employer of his concern of such hazardous condition and of his intention not to perform the work unless the condition is corrected immediately.

Any disputes, grievances, or claims arising out of the refusal to work shall be handled under the same procedures of as for Discrimination and Harassment discussed in the prior page.

49 U.S.C. § 20109
LOCOMOTIVE SAFETY STANDARDS

The Locomotive Inspection Act makes it unlawful for any carrier to use or permit to be used on its line any locomotive unless the entire locomotive and its appurtenances (1) are in proper condition and safe to operate in the service for which they are put, without unnecessary peril to life or limb and (2) have been inspected and tested as required by the regulations.

When a locomotive has one or more conditions not in compliance, it may be moved only as a light locomotive or a dead locomotive after "a qualified person shall determine that it is safe to move the locomotive and the maximum speed and other restrictions necessary to safe movement." The engineer shall be notified in writing and inform all other crew members of the noncomplying locomotive and any restriction. A copy of a tag bearing the words "noncomplying locomotive" shall be attached to the control stand.

If a locomotive develops a noncomplying condition en route, it may continue to utilize its propelling motors if operated under the restrictions set forth in the above paragraph until the next calendar day inspection or to the nearest repair point.

A noncomplying locomotive may be moved light or dead within a yard at speeds not in excess of ten miles per hour if the movement is solely for the purpose of repair.

A dead locomotive may not continue in use following a calendar day inspection as a controlling locomotive or at the head of a train or locomotive consist.

Each locomotive in use shall be inspected at least once during each calendar day. A written report shall be made of each inspection and a description of the noncomplying conditions must be stated and the conditions corrected before the locomotive is used. The nature of the repairs that have been made shall be placed in the report and signed by the person making the repair.

In conducting the calendar day locomotive inspection, the FRA has issued a clarification of which specific FRA regulations must be complied with. These are:

Section 229.21: Daily Inspections

(a) Requires that a written report be prepared by the railroad inspector after the inspection of a locomotive has been completed. The report must contain:

1. The name of the railroad;
2. The initials and number of the locomotive;
3. The place;
4. The date;
5. The time of the inspection;
6. A description of any noncomplying conditions of this part disclosed by the inspection; and
7. The signature of the employee making the inspection.
The inspector must also enter on the record maintained in the locomotive cab the date, time, and place of the daily inspection.

All FRA non-complying conditions reported by the inspector must be repaired before the locomotive is used. However, locomotives that do not comply with the sanitary requirements may remain in service beyond the date on which the daily inspection occurs. For example, a railroad may use a locomotive with a defective toilet in switching service for up to 10 days, at which time it must be repaired or used in the trailing position. The repairs may be recorded electronically.

The inspector performing the inspection should also examine any work reports found on a locomotive which may have information entered by previous engineers regarding FRA defective conditions, and these items should also be inspected. Any noncomplying safety critical condition, under this part found by an inspector and not included in this list, shall also be reported. Those conditions not covered by this part and reported, i.e., toilet facilities, are not considered noncomplying conditions except if excessive strong chemical odors persist in the cab.

In addition to the daily inspection of each locomotive and steam generator, periodic inspections shall be given not to exceed 92 days. Every periodic inspection shall include the following: (1) all gauges used by the engineer for braking shall be tested; (b) all electric devices and visible insulation shall be inspected; (c) all cable connections and jumpers designed to carry 600 volts or more shall be cleaned, inspected and tested for continuity; (d) each steam generator shall be inspected and tested.

Each locomotive shall be inspected and tested annually as follows: (1) the filtering devices or dirt collectors in the main reservoir supply line to the air brake system shall be cleaned, repaired, or replaced; (b) brake cylinder relay valve portions main reservoir safety valves, brake pipe vent valve portions, feed and reducing valve portions in the air brake system shall be drained, repaired and tested; (c) the date and place of cleaning, repairing and testing shall be recorded and signed by the person performing the work and the supervisor.

Load meters shall be tested.

Each steam generator shall be subjected to a hydrostatic pressure at least 25% above the working pressure and the visual return water flow indicator shall be removed and inspected.

Within every two years, all valves, valve portions and MU locomotive cylinders and electric-pneumatic master controllers in the air brake system shall be cleaned, repaired and tested. Those persons performing the work and their supervisors shall sign the form.

Within two years, each main reservoir (other than aluminum reservoir) shall be subjected to a hydrostatic pressure test, and shall be hammer tested over its entire surface while the reservoir is empty.
Each welded main reservoir may be drilled over its entire surface and whenever any such telltale hole shall have penetrated the interior of any reservoir, it shall be permanently withdrawn from service.

All systems and components on a locomotive shall be free of conditions that endanger the safety of the crew, locomotive or train. The regulations set forth specific standards for the brake system, emergency brake valve, main reservoir system, aluminum main reservoir, brake gauges, piston travel, foundation brake gear, leakage, draft systems, suspension system (lateral motion, plain bearings, spring wigging, trucks, side bearings, clearance above top of rail, wheel sets, wheel and tire defects); electrical system (current collectors, third rail shoes, emergency pole, shoe insulation, insulation or grounding of metal parts, doors and cover plates, hand operated switches, jumpers, cable connections, motors and generators); internal combustion equipment (safety cutoff device, venting, ground fuel tanks, safety hangers, engines); steam generators (safe working pressure, steam generator number, pressure gauge, safety valves, water flow indicator, warning notice); cabs and cab equipment (slip/slide alarms, speed indicators, cabs, floors and passageways, locomotive cab noise, pilots, snow plows, end plates, headlights, cab lights, audible warning device, sanders).

Section 229.23: Periodic Inspection

The Locomotive Inspection and Repair Report F6180.49A, must be examined to determine that the periodic, annual and biennial inspections are not overdue as indicated by the dates. Also, the event recorders must be inspected for any external damage or indications of tampering.

Section 229.25: Tests: Every Periodic Inspection

This requires that each periodic inspection include all gauges (except load meters used with auxiliary brake system), all electrical devices and visible insulation, all cable connections designed to carry 600 volts or more, each steam generator, and the event recorder.

Section 229.27: Annual Tests

This section requires certain testing of the locomotive each 368 days, primarily to the brake system, load meters, and steam generator.

Section 229.41: Protection against personal injury

Fan openings, exposed gears and pinions, and exposed moving parts must be inspected to determine that no significant safety hazard exists.

Section 229.43: Exhaust and battery gases

It must be ascertained that the exhaust manifold system and connections contains no breaks, cracks or openings creating an obvious exhaust gas leak into the engine compartment.
Section 229.45: General conditions

Any condition that would endanger the safety of the crew, locomotive or train would be considered as noncomplying under this section. These conditions include:

1. Insecure attachment of components, including third rail, shoes or beams, traction motors, motor gear cases, and fuel tanks;
2. Fuel, oil, water, and other leaks and accumulations of oil on electrical equipment;
3. Improper functioning of components, including slack adjusters, pantograph operating cylinders, circuit breakers contractors, relays, switches, and fuses;
4. Cracks, breaks or other infirmities, such as quill drives, axles, gears, etc.

Section 229.46: Brakes, general

The locomotive brakes must be tested to determine they operate as intended. The test procedure should be established by the railroad and should include operating the independent and automatic brake valves to observe that the brakes apply and release properly. Water and oil must also be drained from the main air reservoir.

Section 229.47: Emergency brake valve

The emergency brake valve should be inspected. The valve must be properly marked. There is no requirement that the valve be tested when the daily inspection is performed to know if it will initiate an emergency application of the locomotive brakes. To test or not to test is up to the inspector and/or the railroad.

Section 229.53: Brake gauges

All mechanical gauges and all devices providing indication of air pressure electronically that are used by the engineer to aid in the control or braking of the train or locomotive shall be located so that they may be conveniently read from the engineer's usual position during operation of the locomotive. A gauge or device shall not be more than five percent or three pounds per square inch in error, whichever is less.

Section 229.55: Piston travel

The brake cylinder piston travel must be inspected when the brake is applied. The piston travel must not exceed 1-1/2 inches less than the maximum piston travel (maximum piston travel is entered on the Locomotive Inspection and Repair Report located in the cab). For instance, a maximum brake cylinder piston travel of 8 inches will permit a piston travel of 6-1/2 inches. Brake piston travel is only in noncompliance when it exceeds the standard, and an entry on an engineers report of excessive piston travel
does not necessarily denote noncompliance, although it may be greater than the railroad’s standard. The excuse that piston travel is in noncompliance because the railroad inspector had no ruler is not a valid defense.

Section 229.57: Foundation brake gear

The brake rigging must be inspected for wear, and that all parts are properly secured. Brake shoes must be in approximate alinement with the wheel tread. A wheel which has a brake shoe wearing over the edge of the rim should be inspected for overheating.

Section 229.59: Brake pipe

Brake pipe must be tested to determine that the leakage does not exceed 5 pounds per minute. This is accomplished by making a brake application from an automatic brake pipe reduction, placing the brake pipe cut out valve in the off position, and timing the brake pipe pressure drop for one minute. Other leakage rate tests described in this section would be necessary if an air leak could be heard on a locomotive. If the locomotive is equipped with an Air Flow Meter, it must be inspected to determine that it is not damaged.

Section 229.61: Draft system

Couplers and uncoupling mechanisms must be inspected to determine that they are not bent or broken and function as intended. A coupler, when not coupled to any other equipment, should be operated with the uncoupling lever, and the knuckle must move to the open position freely. The coupler must be inspected to determine that it is free of any cracks, and that the coupler carrier is not broken and secured in position.

Section 229.65: Spring rigging

Truck spring rigging should be inspected to determine that all parts are free of breaks and in proper position. It should be determined that spring safety hangers are in proper position and not fouling the spring mechanism.

Section 229.67: Trucks

A visual inspection of each truck frame shall be performed to determine that it is not broken or have a crack in a stress area that may affect it’s structural integrity. The securing arrangement to prevent the truck and locomotive body from separating in case of a derailment must be in place and securely fastened. The truck may not have a loose tie bar or a cracked or broken center casting, motor suspension lug, equalizer, hanger, gib or pin.

Section 229.69: Side bearings

Side bearings should not be riding in contact, unless so designed. Also, side
bearings should be in good condition and not broken or missing.

Section 229.71: Clearance above top of rail

A visual inspection of the under side of the locomotive must be made from outside the gage of the rail to ascertain that no part of trucks and running gears, with the exception of the wheels and non-metallic sand hoses, are less than 2-1/2 inches above top of rail.

Section 229.75: Wheel and tire defects

Ascertain that wheels do not have egregious defects such as broken or cracked rim or flange and flat spots which would present an immediate derailment hazard. Wheel treads with flat spots or flanges which appear to be high should be measured with an approved gauge to determine whether they are in compliance or not.

Section 229.85: Doors and cover plates marked “Danger”

A visual inspection of all plates covering high voltage electrical apparatus must be performed to ascertain that they are secured in their proper locations.

Section 229.89: Jumper cable connections

Determine that jumper cables are properly stored (ends of cables should not be hanging free) and do not create a tripping hazard.

Section 229.91: Motors and generators

Visual inspection of traction motors and generators must be made to ascertain that they are free of excessive accumulations of oil, that all visible cables and cable connections are free from damage and that no traction motor is cut out.

Section 229.93 Safety cut-off device

Visual inspection of the three safety cut-off devices must be made to ascertain that they are properly marked and free of any impediment which could prevent their operation. Testing of the push-button type electrical safety cut-off device will result in an immediate engine shut down of a locomotive.

Section 229.117: Speed indicators

Visual inspection of the speed indicator equipment is required to ascertain that the indicator and related apparatus is undamaged. The performance and accuracy of the speed indicator can only be ascertained after departure by means of mileage test sections or equivalent procedures.

Section 229.119: Cabs, floors, and passageways

Visual inspection should be conducted of passageways, walkways, cab control
compartment floors, and engine compartment floors. Accumulations of oil, water, debris and other items should only be reported if the condition presents and immediate hazardous and unsafe condition for any person who would use them, e.g. oil accumulation does not provide secure footing or creating a slipping hazard. A visual inspection of the cab seats and windows must also be made to determine that the seats are properly secured to the floor or sides and that the cab windows provide clear vision and are free of broken areas which could create a injury hazard.

Section 229.123: Pilots, snowplows, end plates

A visual inspection must be performed to ascertain that the end of a lead locomotive is equipped with the applicable fixture, properly secured and is not less than 3 inches nor more than 6 inches above top of rail. This item should be inspected on all locomotives in a consist to determine that they are properly secured.

Section 229.125: Headlights

Inspect the headlights to ascertain that they operate properly, and that they can be dimmed as required. On locomotives which have two sealed beams as a headlight, one sealed beam burned out does not necessarily indicate a noncomplying condition. Noncompliance with the candela portion of this Section can only be determined with a light meter.

Section 229.127: Cab lights

Visual inspection of the cab lights must be performed to ascertain that they are operative and provide sufficient illumination. Passageway lights used to illuminate walkways over which railroad personnel walk must be lighted.

Section 229.129: Audible warning device

Operate the horn to ascertain that it functions. The locomotive bell, when equipped, should also be tested for operation.

Section 229.131: Sanders

Test to determine that each locomotive has sand being delivered to each rail in front of the first power operated wheel set in the direction of movement.

In addition to the above there are design requirements for all MU locomotives.

§ 229.137 -- Sanitation, general requirements.

(a) Sanitation compartment. Except as provided in paragraph (b) of this section, all lead locomotives in use shall be equipped with a sanitation compartment. Each sanitation compartment shall be:

(1) Adequately ventilated;
(2) Equipped with a door that:
(i) Closes, and (ii) Possesses a modesty lock;  
(3) Equipped with a toilet facility, as defined in this part;  
(4) Equipped with a washing system, as defined in this part, unless the railroad otherwise provides the washing system to employees upon reporting for duty or occupying the cab for duty, or where the locomotive is equipped with a stationary sink that is located outside of the sanitation compartment;  
(5) Equipped with toilet paper in sufficient quantity to meet employee needs, unless the railroad otherwise provides toilet paper to employees upon reporting for duty or occupying the cab for duty; and  
(6) Equipped with a trash receptacle, unless the railroad otherwise provides portable trash receptacles to employees upon reporting for duty or occupying the cab for duty.  
(b) Exceptions. (1) Paragraph (a) of this section shall not apply to:  
   (i) Locomotives engaged in commuter service or other short-haul passenger service and commuter work trains on which employees have ready access to railroad-provided sanitation facilities outside of the locomotive or elsewhere on the train, that meet otherwise applicable sanitation standards, at frequent intervals during the course of their work shift;  
   (ii) Locomotives engaged in switching service on which employees have ready access to railroad-provided sanitation facilities outside of the locomotive, that meet otherwise applicable sanitation standards, at frequent intervals during the course of their work shift;  
   (iii) Locomotives engaged in transfer service on which employees have ready access to railroad-provided sanitation facilities outside of the locomotive, that meet otherwise applicable sanitation standards, at frequent intervals during the course of their work shift;  
   (iv) Locomotives of Class III railroads engaged in operations other than switching service or transfer service, that are not equipped with a sanitation compartment as of June 3, 2002. Where an unequipped locomotive of a Class III railroad is engaged in operations other than switching or transfer service, employees shall have ready access to railroad-provided sanitation facilities outside of the locomotive that meet otherwise applicable sanitation standards, at frequent intervals during the course of their work shift, or the railroad shall arrange for enroute access to such facilities;  
   (v) Locomotives of tourist, scenic, historic, or excursion railroad operations, which are otherwise covered by this part because they are not propelled by steam power and operate on the general railroad system of transportation, but on which employees have ready access to railroad-provided sanitation facilities outside of the locomotive, that meet otherwise applicable sanitation standards, at frequent intervals during the course of their work shift; and  
   (vi) Except as provided in § 229.14 of this part, control cab locomotives designed for passenger occupancy and used in intercity push-pull service that are not equipped with sanitation facilities, where employees have ready access to railroad-provided sanitation in other passenger cars on the train at frequent intervals during the course of their work shift.  
(2) Paragraph (a)(3) of this section shall not apply to:
(i) Locomotives of a Class I railroad which, prior to [the effective date of
this section], were equipped with a toilet facility in which human waste falls via
gravity to a holding tank where it is stored and periodically emptied, which does
not conform to the definition of toilet facility set forth in this section. For these
locomotives, the requirements of this section pertaining to the type of toilet
facilities required shall be effective as these toilets become defective or are
replaced with conforming units, whichever occurs first. All other requirements set
forth in this section shall apply to these locomotives as of June 3, 2002; and

(ii) With respect to the locomotives of a Class I railroad which, prior to
June 3, 2002, were equipped with a sanitation system other than the units
addressed by paragraph (b)(2)(i) of this section, that contains and removes human
waste by a method that does not conform with the definition of toilet facility as
set forth in this section, the requirements of this section pertaining to the type of
toilet facilities shall apply on locomotives in use on July 1, 2003. However, the
Class I railroad subject to this exception shall not deliver locomotives with such
sanitation systems to other railroads for use, in the lead position, during the time
between June 3, 2002, and July 1, 2003. All other requirements set forth in this
section shall apply to the locomotives of this Class I railroad as of June 3, 2002.

(c) Defective, unsanitary toilet facility; prohibition in lead position. Except as
provided in paragraphs (c)(1) through (5) of this section, if the railroad determines during
the daily inspection required by § 229.21 that a locomotive toilet facility is defective or is
unsanitary, or both, the railroad shall not use the locomotive in the lead position. The
railroad may continue to use a lead locomotive with a toilet facility that is defective or
unsanitary as of the daily inspection only where all of the following conditions are met:

1. The unsanitary or defective condition is discovered at a location where there
are no other suitable locomotives available for use, i.e., where it is not possible to switch
another locomotive into the lead position, or the location is not equipped to clean the
sanitation compartment if unsanitary or repair the toilet facility if defective;

2. The locomotive, while noncompliant, did not pass through a location where it
could have been cleaned if unsanitary, repaired if defective, or switched with another
compliant locomotive, since its last daily inspection required by this part;

3. Upon reasonable request of a locomotive crewmember operating a locomotive
with a defective or unsanitary toilet facility, the railroad arranges for access to a toilet
facility outside the locomotive that meets otherwise applicable sanitation standards;

4. If the sanitation compartment is unsanitary, the sanitation compartment door
shall be closed and adequate ventilation shall be provided in the cab so that it is
habitable; and

5. The locomotive shall not continue in service in the lead position beyond a
location where the defective or unsanitary condition can be corrected or replaced with
another compliant locomotive, or the next daily inspection required by this part,
whichever occurs first.

(d) Defective, unsanitary toilet facility; use in trailing position. If the railroad
determines during the daily inspection required by § 229.21 that a locomotive toilet
facility is defective or is unsanitary, or both, the railroad may use the locomotive in
trailing position. If the railroad places the locomotive in trailing position, they shall not
haul employees in the unit unless the sanitation compartment is made sanitary prior to
occupancy. If the toilet facility is defective and the unit becomes occupied, the railroad
shall clearly mark the defective toilet facility as unavailable for use.
(e) **Defective, sanitary toilet facility; use in switching, transfer service.** If the railroad determines during the daily inspection required by § 229.21 that a locomotive toilet facility is defective, but sanitary, the railroad may use the locomotive in switching service, as set forth in paragraph (b)(1)(ii) of this section, or in transfer service, as set forth in paragraph (b)(1)(iii) of this section for a period not to exceed 10 days. In this instance, the railroad shall clearly mark the defective toilet facility as unavailable for use. After expiration of the 10-day period, the locomotive shall be repaired or used in the trailing position.

(f) **Lack of toilet paper, washing system, trash receptacle.** If the railroad determines during the daily inspection required by § 229.21 that the lead locomotive is not equipped with toilet paper in sufficient quantity to meet employee needs, or a washing system as required by paragraph (a)(4) of this section, or a trash receptacle as required by paragraph (a)(6) of this section, the locomotive shall be equipped with these items prior to departure.

(g) **Inadequate ventilation.** If the railroad determines during the daily inspection required by § 229.21 that the sanitation compartment of the lead locomotive in use is not adequately ventilated as required by paragraph (a)(1) of this section, the railroad shall repair the ventilation prior to departure, or place the locomotive in trailing position, in switching service as set forth in paragraph (b)(1)(ii) of this section, or in transfer service as set forth in paragraph (b)(1)(iii) of this section.

(h) **Door closure and modesty lock.** If the railroad determines during the daily inspection required by § 229.21 that the sanitation compartment on the lead locomotive is not equipped with a door that closes, as required by paragraph (a)(2)(i) of this section, the railroad shall repair the door prior to departure, or place the locomotive in trailing position, in switching service as set forth in paragraph (b)(1)(ii) of this section, or in transfer service as set forth in paragraph (b)(1)(iii) of this section. If the railroad determines during the daily inspection required by § 229.21 that the modesty lock required by paragraph (a)(2)(ii) of this section is defective, the modesty lock shall be repaired pursuant to the requirements of § 229.139(e).

(i) **Equipped units; retention and maintenance.** Except where a railroad downgrades a locomotive to service in which it will never be occupied, where a locomotive is equipped with a toilet facility as of [the effective date of the final rule], the railroad shall retain and maintain the toilet facility in the locomotive consistent with the requirements of this part, including locomotives used in switching service pursuant to paragraph (b)(1)(ii) of this section, and in transfer service pursuant to paragraph (b)(1)(iii) of this section.

(j) **Newly manufactured units; in-cab facilities.** All locomotives manufactured after June 3, 2002, except switching units built exclusively for switching service and locomotives built exclusively for commuter service, shall be equipped with a sanitation compartment accessible to cab employees without exiting to the out-of-doors for use. No railroad may use a locomotive built after June 3, 2002, that does not comply with this subsection.

(k) **Potable water.** The railroad shall utilize potable water where the washing system includes the use of water.

§ 229.139 -- Sanitation, servicing requirements.

(a) The sanitation compartment of each lead locomotive in use shall be sanitary.
(b) All components required by § 229.137(a) for the lead locomotive in use shall be present consistent with the requirements of this part, and shall operate as intended such that:
   (1) All mechanical systems shall function;
   (2) Water shall be present in sufficient quantity to permit flushing;
   (3) For those systems that utilize chemicals for treatment, the chemical (chlorine or other comparable oxidizing agent) used to treat waste must be present; and
   (4) No blockage is present that prevents waste from evacuating the bowl.
(c) The sanitation compartment of each occupied locomotive used in switching service pursuant to § 229.137(b)(1)(ii), in transfer service pursuant to § 229.137(b)(1)(iii), or in a trailing position when the locomotive is occupied, shall be sanitary.
(d) Where the railroad uses a locomotive pursuant to § 229.137(e) in switching or transfer service with a defective toilet facility, such use shall not exceed 10 calendar days from the date on which the defective toilet facility became defective. The date on which the toilet facility becomes defective shall be entered on the daily inspection report.
(e) Where it is determined that the modesty lock required by § 229.137(a)(2) is defective, the railroad shall repair the modesty lock on or before the next 92-day inspection required by this part.

Locomotive Visibility Standards

(a) Each lead locomotive operated at speeds greater than 20 miles per hour over a public highway-rail crossing shall be equipped with auxiliary lights, in addition to a headlight. Some locomotives already equipped with auxiliary lights such as an oscillating light or a strobe light will be grandfathered until March 6, 2000.

(b) Auxiliary lights shall be composed as follows:

1. Two white auxiliary lights shall be placed at the front of the locomotive to form a triangle with the headlight and shall be at least 36 inches above the top of the rail (except on MU locomotives and control cab locomotives where the placement would be impractical or would compromise the integrity of the car body). On MU locomotives and controlled cab locomotives the auxiliary lights shall be at least 24 inches above the top of the rail. The lights shall be placed at least 36 inches apart. If the vertical distance from the headlight to the horizontal axis of the auxiliary lights is 60 inches or more, they shall be

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23/ On March 6, 1996, the FRA issued its final rule covering locomotive visibility. This resulted from legislation which was proposed by rail labor in 1992.

24/ The Secretary submitted a report to Congress in 1983 on whether the lead car of any train should be equipped with a mounted oscillating light. She stated there was no jurisdiction for such lights. However, the BN Railroad now requires two strobe lights on all of its road locomotives for improved safety against highway grade crossing accidents.
spaced at least 60 inches apart if the vertical distance from the headlight to the horizontal axis of the auxiliary lights is less than 60 inches.

2. Each auxiliary light shall produce at least 200,000 candela.

3. The auxiliary light shall be focused horizontally within 15 degrees of the longitudinal centerline of the locomotive.

4. The lights may be arranged to burn steadily or flash on approach to a crossing. If flashing lights are used, they shall flash alternately at a rate of at least 40 flashes per minute and at most 180 flashes per minute. The railroads operating rules shall set a standard procedure for the use of flashing lights at crossings, and the flashing feature may be automatic, but shall be capable of manual activation and deactivation by the locomotive engineer.

5. The lights shall be continuously illuminated immediately prior to, and during movement of the locomotive, except as provided by railroad operating rules, time table or special instructions, unless such exception is disapproved by the FRA.

6. If an auxiliary light becomes defective, the lead locomotive with only one failed auxiliary light must be repaired or switched to a trailing position before departure where an initial terminal inspection is required. If a failure occurs after departure from an initial terminal, it must be repaired not later than the next locomotive calendar inspection. If a lead has two failed auxiliary lights, it may only proceed to the next place where repairs can be made.

7. Historic equipment (i.e., built before December 31, 1948) that is not used regularly in commuter or intercity passenger service is exempt from the requirements.

8. The following lead locomotives are considered to be in compliance with this rule if equipped with: (1) oscillating lights that were ordered for installation prior to January 1, 1966, is considered in compliance; (2) strobe lights and operated at speeds no greater than 40 miles per hour (until the locomotive is rebuilt); and (3) two white auxiliary lights spaced at least 44 inches apart on at least one axis which was equipped before May 30, 1994.

Appendix A- Form FRA 6180-49A (See 45 FR 21118 for a copy)
Appendix B- Penalty Schedule
Appendix C-Code of Defects( See 45 FR 211121 for a copy)

49 U.S.C. §§ 20143, 20701-20703, 21302, 21304
49 C.F.R. §§ 229.1-229.141
EVENT RECORDER REGULATIONS

1. There shall be an event recorder on all trains operating faster than 30 mph. The event recorder is not required to be located on the lead locomotive, so long as it monitors and records the required data as though it were located in the lead locomotive.

2. The event recorder is required to record data and monitor data on train speed, direction of motion, time, distance, throttle position, brake applications and operations, and cab signals (if the locomotive is so equipped) over the most recent 48 hours of operation. This requirement is satisfied if, so long as each aspect of the operations can be derived from some other recorded data by calculations.

3. The recorders shall be maintained in accordance with the standard set by the manufacturer, the supplier or the owner of the unit. A written copy of the maintenance instruction shall be kept at the location where the work is being done. A performance standard requires that 90% of the recorders be fully functional when they are given periodic inspections. If the "ready rate" drops below this, the railroads are required to adjust maintenance intervals or operations so that this performance level is achieved.

4. Railroads shall have an in-service event recorder on the lead locomotive.

5. When an event recorder is taken out of service, the locomotive cannot remain as the lead locomotive beyond the next calendar day inspection.

6. A railroad is required to remove an event recorder which it knows is not monitoring or recording accurately, and this shall be noted on the cab card form. The recorder may not remain out-of-service beyond the completion of the next periodic inspection.

7. A railroad whose locomotive is involved in an accident which is required to be reported to FRA shall preserve the recorded data for analysis by FRA or NTSB. That is, the original or a first order accurate copy is retained in secure custody and shall not be utilized for analysis or any other purpose except by direction of FRA or NTSB. This requirement shall expire 30 days after the accident, unless FRA or NTSB notifies the railroad otherwise.

49 U.S.C. §20137
49 C.F.R. §§ 229.5, 229.25 & 229.135
REAR END MARKING DEVICES

All passenger, commuter and freight trains which operate on main track shall be equipped with marking devices located on the trailing end of the rear car of a train.

The marking devices shall be displayed during the hours between one hour before sunset and one hour after sunrise, and during all other hours when weather conditions restrict visibility so that the rear car can be seen from a half-mile on tangent track by persons having 20/20 vision.

The center of the device must be located at a minimum of 48 inches above the top of the rail.

The intensity of the marker must be not less than 100 candella or more than 1,000 candella.

The color shall be in the red-orange-amber color range.

If a flashing light is used, it shall flash at a rate of not less than once every 1.3 second nor more than once every .7 seconds.

Where a locomotive is operated singly, or at the rear of a train, it shall be equipped with a marking device than complies with the above requirements, or use the rear headlight illuminated at low beam.

Inspection Requirements of Rear End Marking Devices

1. Rear marker devices shall be inspected at initial terminals and at each crew change location.

2. If a train is equipped with a radio telemetry device, the marker may be inspected by observing the read out information displayed in the cab of the controlling locomotive which demonstrates that the light is functioning as required. This is permitted in lieu of conducting a visual observation at the rear of the train.

3. The rear marker device may be inspected by a train crew or some other qualified person who has received adequate training concerning the specific task each employee is required to perform. If a non-train crewmember performs the examination, that person shall communicate his/her findings to the engineer of the new crew.

4. Where a railroad uses a marking device with a photoelectric cell mechanism, it shall illuminate or flash the device continuously when there is less than 1.0 candela per square meter of ambient light. This sets a standard for such photoelectric cell use for periods prior to sunset and immediately after sunrise.

5. Whenever a person other than a member of the operating crew inspects the rear end device, he or she is entitled to certain safety protection. Prior to operating the activation switch or covering the photoelectric cell when conducting the test of the
device, the railroad must provide either

(i) full blue flag protection, or (ii) the train to be inspected must be standing on a main track; the inspection must be limited to ascertaining that the marker is in the proper operating condition; and prior to performing inspection, the inspector shall personally contact the engineer or the hostler and be told that they are occupying the cab of the controlling locomotive and that the train will remain secure against movement until the inspection has been completed.

6. A train with a failed marker may not continue to move to a repair location if that would entail passing a location where a replacement marker could be installed. The railroad must not move the train further than the next location where the marker can be replaced. Such replacement locations include the first terminal, yard, or station that the train with the defective device reaches where markers are available. This includes locations where markers are stored or kept available for use on local trains. Therefore, the railroad cannot move the train with the defective marker to only those locations where heavy repair facilities are available.

Appendix A- Procedures for Approval of Rear End Marking Devices
Appendix B- Approved Rear End Marking Devices

49 U.S.C. § 20132
49 C.F.R. §§ 221.1-221.17
RADIO COMMUNICATIONS

Communications Equipment Requirements:

**Trains**
- On July 1, 1999, large railroads (defined as 400,000 or more annual employee hours) must equip each train with both a working radio in the occupied controlling locomotive and a means of working wireless communications. The radio equipment must be capable of reaching the railroads control center or a portable radio to monitor local transmissions from trains. There are two exceptions to the requirement for radio coverage of all territories: (a) tunnels or other localized places of extreme topography; and (b) temporary lapses of coverage due to atmospheric or topographic conditions.

- On July 1, 2000, small railroads (those with fewer than 400,000 annual employee hours) are required to have:

  * a working radio in the occupied controlling locomotive and a means of working wireless communications on any train that carries passengers; or
  
  * a working radio in the occupied controlling locomotive on any train that:
    - operates at greater than 25 miles per hour (mph),
    - engages in joint operations on track where the maximum authorized speed for freight trains exceeds 25 mph, or
    - engages in joint operations on track adjacent to (within 30 feet) of another track on which the maximum authorized speed for passenger trains exceeds 40 mph; or
    - a means of working wireless communications in the occupied controlling locomotive on any train that:
      - engages in joint operations where the maximum authorized speed of the track is 25 mph or less, or transports hazardous material.

**Roadway workers**
- On July 1, 1999, large railroads must provide:

  * a working radio for at least one unit of maintenance-of-way (MOW) equipment operating without locomotive assistance between work locations when multiple MOW units are traveling under the same movement authority, and intra-group communications capability for each MOW group upon arrival at the work site.

- On July 1, 1999, railroads must equip each employee designated by the employer to
provide on-track safety for a roadway work group(s), and each lone worker with:

* immediate access to a working radio; or

* (for small railroads only), immediate access to working wireless communications.

• The communication equipment requirements for roadway workers do not apply to:

  * small railroads that do not operate trains in excess of 25 mph; or

  * work locations which are:

    - physically inaccessible to trains, or

    - have no through traffic or traffic on adjacent rails when roadway workers will be present.

• Railroad employees are required to:

  * test radio and wireless communications equipment as soon as practicable (to ensure that the equipment functions as intended before beginning their work assignment),

  * remove inoperative equipment as soon as practicable,

  and

  * report emergencies (e.g., derailments, collisions, storms) using the quickest means of communication available. An initial emergency radio transmission shall be preceded by the word “emergency” three times.

    - Ending a transmission with “Over” or “Out” is not required for yard switching operations, but it is for all other operations.

The final rule does not promulgate non-radio wireless communications procedures, but it does add provisions addressing the testing and failure of non-radio wireless communications equipment.

Any radio or wireless device not functioning properly, when tested shall be removed from service and the dispatcher or other railroad designated employee notified as soon as practicable. If the radio on wireless device on the controlling locomotive fails en route, the train may continue until the earlier of the next calendar day inspection, or the nearest forward point where it can be repaired.

Operational Requirements:

Each railroad shall designate its territory where radio base stations are installed, where a wayside station can be contacted, and designate appropriate radio channels by
publishing them in a timetable or special instructions.

Each employee authorized to use a radio shall be provided with a copy of the railroad's operating rule governing the use of radio communication and instructed in the proper use of radio communication. The rules set forth methods of identification of the wayside, base or yard station and the method for initiating a transmission or receiving one.

When radio communication is used instead of hand signals in switching, backing or pushing, the employee shall give complete instructions for keeping continuous radio contact with the other employees. When backing or switching a train, the distance of the movement must be specified and the movement must be stopped in one-half the remaining distance unless additional instructions are received. If instructions are not understood or continuous radio contact is not maintained, the movement shall be stopped immediately until contact has been restored.

No information may be given by radio to a train or engine crew about the position or aspect displayed by a fixed signal, except to communicate to other members of the same crew.

The procedures for transmitting train directives by radio are as follows: (a) the dispatcher or operator shall call the addressees of the train order and state his intentions to transmit the directive; (b) Before the order is transmitted, the employee to receive and copy the train order shall identify himself, his location, and readiness to receive and copy. Train orders may not be received and copied by an employee operating the controls on an engine of a moving train. Train orders may not be transmitted to the crew if they cannot be received and copied without impairing the safe operation of the train. After the train order has been received and copied, it shall be immediately repeated in its entirety. After verifying the accuracy, the dispatcher shall then state the time and name of the employee designated by the railroad who is authorized to issue mandatory directives; (c) Before a train order is acted upon, the conductor and engineer each must have a written copy of the train order and make certain that it is read and understood by the other crew members, copying and retention of all mandatory directives until the end of the work assignment is required for engineers, conductors and employees responsible for on-track safety; (d) A train order which is not complete and which does not comply with the railroad's operating rules may not be acted upon.

**Extraterritorial Dispatching**

In general, railroads are prohibited from using dispatchers outside the U.S. to dispatch trains located in the U.S. Waivers may be granted in areas immediately adjacent to the borders with Canada and Mexico to facilitate hand-off of cross border operations to domestic dispatchers.

Extraterritorial dispatching is permitted in emergencies.

49 C.F.R. §§ 220.1-220.61
49 C.F.R. Part 214 and 217
SLEEPING QUARTERS

It is unlawful for a railroad to construct or reconstruct sleeping quarters within one-half mile of any area where switching or humping operations are performed.

If a railroad proposes to house employees closer than one-half mile, it must petition FRA for an exemption. The exemption will not be granted unless (1) there is no feasible alternate site available; (2) there are barriers to shield the building from an explosion; and (3) the noise inside the building will permit proper rest.

All railroads are required to furnish sleeping quarters to employees that provide an opportunity for rest which must be clean, safe, and sanitary, and free from interruptions caused by noise under the control of the railroad. These requirements apply to operating personnel and to maintenance of way crews.

Appendix A-Statement of Agency Policy and Interpretation
Appendix B- Penalty Schedule
Appendix C-Guidelines For Clean, Safe, and Sanitary Railroad Provided Camp Cars

49 U.S.C. § 21106
49 C.F.R. §§ 228.101-228.107
TRACK STANDARDS

Subpart A - General

§ 213.3  Application

Track standards apply to all standard gauge track in the general railroad system except (a) track located inside an installation which is not part of the general railroad system or (b) used exclusively for rapid transit.

§ 213.4  Excepted Track

A track owner may except a designated segment of track from coverage under the regulation if (a) it is identified in the timetable, special instruction, general order or other records; (b) it is not located within 30 feet of an adjacent track over which speeds may be in excess of 10 miles per hour; (c) it is inspected at the same frequency as for Class 1 track; (d) it is not located on a bridge or 100 feet on either side of a bridge, or located on a public street or highway, if cars containing placarded hazardous materials are moved over the track; (e) the operation over that segment shall have further limitations: (1) no train shall be operated at speeds in excess of 10 miles per hour; (2) no revenue passenger train shall be operated; (3) no freight train may be operated that contains more than 5 cars placarded as hazardous materials; and (4) the gage on excepted track shall not be more than 4 feet 10 1/4 inches.

§ 213.5  Responsibility for Compliance

If an owner of track knows or has notice that the track does not comply with these regulations, he shall (a) bring the track into compliance; or (b) halt operations over that track; or (c) operate under the authority of a person designated who has at least one year of supervisory experience in railroad track maintenance; or a combination of supervisory experience and a course training in track maintenance (or a college level education related to track maintenance).

§ 213.9  Speed Limits

Operations over excepted track may continue without the necessity to comply with the provisions of the higher classes of track.

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25 / Because of the complexity of the track standards, the specific sections are cited.
The maximum allowable operating speeds over the various classes of track are as follows:

<table>
<thead>
<tr>
<th>Over track that meets all of the requirements prescribed in this part for —</th>
<th>The maximum allowable operating speed for freight trains is—</th>
<th>The maximum allowable operating speed for freight trains is—</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excepted track</td>
<td>10</td>
<td>N/A</td>
</tr>
<tr>
<td>Class 1 track</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Class 2 track</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Class 3 track</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>Class 4 track</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Class 5 track</td>
<td>80</td>
<td>90</td>
</tr>
</tbody>
</table>

A segment of track that does not meet all of the requirements for its intended class shall be reclassified to the next lowest class for which it does not meet the requirements. If the segment does not at least meet the requirements of Class 1 track, the railroad may continue Class 1 speeds for up to 30 days without bringing it into compliance under a designated and qualified person's supervision.

§ 213.11 Restoration or Renewal

If during a period of restoration or renewal, track does not meet all of the requirements, the work on the track must be under the continuous supervision of a designated person who has at least one year supervisory experience in railroad track maintenance. The term "continuous supervision" means the physical presence of that person at a job site. If the work is performed over a large area, it is not necessary that each phase of the work be done under visual supervision of that person.

§ 213.13 Measuring Track not Under Load

When unloaded track is measured to determine compliance with requirements of this part, the amount of rail movement, if any, that occurs while the track is loaded must be added to the measurements of the unloaded track.

Subpart B - Roadbed

§ 213.33 Drainage

Each drainage or other water-carrying facility under or immediately adjacent to the roadbed must be maintained and kept free of obstruction, to accommodate expected water flow for the area concerned.

§ 213.37 Vegetation

Vegetation on railroad property which is on or immediately adjacent to roadbed must be controlled so that it does not (a) become a fire hazard to track carrying structures; (b) obstruct visibility of railroad signs and signals along the right of way and at highway-rail crossings; (c) interfere with railroad employees performing normal
trackside duties; (d) prevent proper functioning of signal and communication lines; or (e) prevent railroad employees from visually inspecting moving equipment from their normal duty stations.

Subpart C - Track Geometry

§ 213.53 Gage

Gage must be within the limits prescribed in the following table:

<table>
<thead>
<tr>
<th>Class of track</th>
<th>The gage must be —</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At least</td>
</tr>
<tr>
<td>Excepted Track</td>
<td>N/A</td>
</tr>
<tr>
<td>1</td>
<td>4'8&quot;</td>
</tr>
<tr>
<td>2 and 3</td>
<td>4'8&quot;</td>
</tr>
<tr>
<td>4 and 5</td>
<td>4'8&quot;</td>
</tr>
</tbody>
</table>

§ 213.55 Alinement

Alinement may not deviate from uniformity more than the amount prescribed in the following table:

<table>
<thead>
<tr>
<th>Class of track</th>
<th>TANGENT TRACK</th>
<th>CURVED TRACK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The deviation of the mid-offset from 62-foot line(^1/) may not be more than—</td>
<td>The deviation of the mid-ordinate from a 31-foot chord(^2/) may not be more than—</td>
</tr>
<tr>
<td>1</td>
<td>5°</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>3°</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>1 3/4&quot;</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>4</td>
<td>1 1/2&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>5</td>
<td>3/4&quot;</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

\(^1/\)The ends of the line must be at points on the gage side of the line rail, 5/8 of an inch below the top of the railhead. Either rail may be used as the line rail, however, the same rail must be used for the full length of that tangential segment of track.

\(^2/\)The ends of the chord must be at points on the gage side of the outer rail, 5/8 of an inch below the top of the railhead.

§ 213.57 Curves; elevation and speed limitations.

(a) The maximum crosslevel on the outside rail of a curve may not be more than 8 inches on track Classes 1 and 2 and 7 inches on Classes 3 through 5. Except as provided
in § 213.63, the outside rail of a curve may not be lower than the inside rail. (The first sentence of paragraph (a) is applicable September 21, 1999.)

(b)(1) The maximum allowable operating speed for each curve is determined by the following formula --

\[ V_{\text{max}} = \sqrt{\frac{E_a + 3}{0.0007D}} \]

D = Degree of curvature (degrees). n2

(2) Table 1 of Appendix A is a table of maximum allowable operating speed computed in accordance with this formula for various elevations and degrees of curvature.

(c) (1) For rolling stock meeting the requirements specified in paragraph (d) of this section, the maximum operating speed for each curve may be determined by the following formula --

\[ V_{\text{max}} = \sqrt{\frac{E_a + 4}{0.0007D}} \]

Where --

\( V_{\text{max}} \) = Maximum allowable operating speed (miles per hour).

\( E_a \) = Actual elevation of the outside rail (inches). n1

n1 Actual elevation for each 155 foot track segment in the body of the curve is determined by averaging the elevation for 10 points through the segment at 15.5 foot spacing. If the curve length is less than 155 feet, average the points through the full length of the body of the curve.

D = Degree of curvature (degrees). n2

n2 Degree of curvature is determined by averaging the degree of curvature over the same track segment as the elevation.

(2) Table 2 of Appendix A is a table of maximum allowable operating speed computed in accordance with this formula for various elevations and degrees of curvature.

(d) Qualified equipment may be operated at curving speeds determined by the formula in paragraph (c) of this section, provided each specific class of equipment is approved for operation by the Federal Railroad Administration and the railroad demonstrates that:

(1) When positioned on a track with a uniform 4-inch superelevation, the roll angle between the floor of the equipment and the horizontal does not exceed 5.7 degrees; and

(2) When positioned on a track with a uniform 6 inch superelevation, no wheel of the equipment unloads to a value of 60 percent of its static value on perfectly level track, and the roll angle between the floor of the equipment and the horizontal does not exceed 8.6 degrees.

(3) The track owner shall notify the Federal Railroad Administrator no less than 30 calendar days prior to the proposed implementation of the higher curving speeds allowed under the formula in paragraph (c) of this section. The notification shall be in writing and shall contain, at a minimum, the following information --
(i) A complete description of the class of equipment involved, including schematic diagrams of the suspension systems and the location of the center of gravity above top of rail;

(ii) A complete description of the test procedure n3 and instrumentation used to qualify the equipment and the maximum values for wheel unloading and roll angles which were observed during testing;

n3 The test procedure may be conducted in a test facility whereby all the wheels on one side (right or left) of the equipment are alternately raised and lowered by 4 and 6 inches and the vertical wheel loads under each wheel are measured and a level is used to record the angle through which the floor of the equipment has been rotated.

(iii) Procedures or standards in effect which relate to the maintenance of the suspension system for the particular class of equipment; and

(iv) Identification of line segment on which the higher curving speeds are proposed to be implemented.

(e) A track owner, or an operator of a passenger or commuter service, who provides passenger or commuter service over trackage of more than one track owner with the same class of equipment may provide written notification to the Federal Railroad Administrator with the written consent of the other affected track owners.

(f) Equipment presently operating at curving speeds allowed under the formula in paragraph (c) of this section, by reason of conditional waivers granted by the Federal Railroad Administration, shall be considered to have successfully complied with the requirements of paragraph (d) of this section.

(g) A track owner or a railroad operating above Class 5 speeds, may request approval from the Federal Railroad Administrator to operate specified equipment at a level of cant deficiency greater than four inches in accordance with § 213.329(c) and (d) on curves in Class 1 through 5 track which are contiguous to the high speed track provided that --

(1) The track owner or railroad submits a test plan to the Federal Railroad Administrator for approval no less than thirty calendar days prior to any proposed implementation of the higher curving speeds. The test plan shall include an analysis and determination of carbody acceleration safety limits for each vehicle type which indicate wheel unloading of 60 percent in a steady state condition and 80 percent in a transient (point by point) condition. Accelerometers shall be laterally-oriented and floor-mounted near the end of a representative vehicle of each type;

(2) Upon FRA approval of a test plan, the track owner or railroad conducts incrementally increasing train speed test runs over the curves in the identified track segment(s) to demonstrate that wheel unloading is within the limits prescribed in paragraph (g)(1) of this section;

(3) Upon FRA approval of a cant deficiency level, the track owner or railroad inspects the curves in the identified track segment with a Track Geometry Measurement System (TGMS) qualified in accordance with § 213.333 (b) through (g) at an inspection frequency of at least twice annually with not less than 120 days interval between inspections; and

(4) The track owner or railroad operates an instrumented car having dynamic response characteristics that are representative of other equipment assigned to service or a portable device that monitors on-board instrumentation on trains over the curves in the identified track segment at the revenue speed profile at a frequency of at least once every 90-day period with not less than 30 days interval between inspections. The instrumented
car or the portable device shall monitor a laterally-oriented accelerometer placed near the end of the vehicle at the floor level. If the carbody lateral acceleration measurement exceeds the safety limits prescribed in paragraph (g)(1), the railroad shall operate trains at curving speeds in accordance with paragraph (b) or (c) of this section; and (5) The track owner or railroad shall maintain a copy of the most recent exception printouts for the inspections required under paragraphs (g)(3) and (4) of this section.

§ 213.59 Elevation of curved track; runoff.

(a) If a curve is elevated, the full elevation shall be provided throughout the curve, unless physical conditions do not permit. If elevation runoff occurs in a curve, the actual minimum elevation shall be used in computing the maximum allowable operating speed for that curve under § 213.57(b).

(b) Elevation runoff shall be at a uniform rate, within the limits of track surface deviation prescribed in § 213.63, and it shall extend at least the full length of the spirals. If physical conditions do not permit a spiral long enough to accommodate the minimum length of runoff, part of the runoff may be on tangent track.

§ 213.63 Track surface.

Each owner of the track to which this part applies shall maintain the surface of its track within the limits prescribed in the following table:

<table>
<thead>
<tr>
<th>Track surface</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The runoff in any 31 feet of rail at the end of a raise may not be more than</td>
<td>3 1/2</td>
<td>3</td>
<td>2</td>
<td>1 1/2</td>
<td>1</td>
</tr>
<tr>
<td>The deviation from uniform profile on either rail at the mid-ordinate of a 62-foot chord may not be more than</td>
<td>3</td>
<td>2 3/4</td>
<td>2 1/4</td>
<td>2</td>
<td>1 1/4</td>
</tr>
<tr>
<td>The deviation from zero crosslevel at any point on tangent or reverse crosslevel elevation on curves may not be more than</td>
<td>3</td>
<td>2</td>
<td>1 3/4</td>
<td>1 1/4</td>
<td>1</td>
</tr>
<tr>
<td>The difference in crosslevel between any two points less than 62 feet apart may not be more than* fn 1,2</td>
<td>3</td>
<td>2 1/4</td>
<td>2</td>
<td>1 3/4</td>
<td>1 1/2</td>
</tr>
</tbody>
</table>
*Where determined by engineering decision prior to the promulgation of this rule, due to physical restrictions on spiral length and operating practices and experience, the variation in crosslevel on spirals per 31 feet may not be more than

\[ 2\quad 1 \frac{3}{4} \quad 1 \frac{1}{4} \quad 1 \quad \frac{3}{4} \]

fn1 Except as limited by § 213.57(a), where the elevation at any point in a curve equals or exceeds 6 inches, the difference in crosslevel within 62 feet between that point and a point with greater elevation may not be more than 1 1/2 inches. (Footnote 1 is applicable September 21, 1999.)

fn2 However, to control harmonics on Class 2 through 5 jointed track with staggered joints, the crosslevel differences shall not exceed 1 1/4 inches in all of six consecutive pairs of joints, as created by 7 low joints. Track with joints staggered less than 10 feet shall not be considered as having staggered joints. Joints within the 7 low joints outside of the regular joint spacing shall not be considered as joints for purposes of this footnote. (Footnote 2 is applicable September 21, 1999.)

**Subpart D - Track Structure**

**§ 213.103 Ballast**

All track must be supported by a material which will (a) transmit and distribute the load of the track and railroad rolling equipment to the subgrade; (b) restrain the track laterally, longitudinally, and vertically under dynamic loads imposed by railroad equipment and thermal stress exerted by the rails; (c) provide adequate drainage for the track; (d) maintain proper track cross level, surface and alinement.

**§ 213.109 Crossties**

(a) Crossties shall be made of a material to which rail can be securely fastened.

(b) Each 39-foot segment of track shall have:

(1) A sufficient number of crossties which in combination provide effective support that will:

    (i) Hold gage;
    (ii) Maintain surface; and
    (iii) Maintain alinement.

(2) The minimum number and type of crossties specified in paragraph (c) of this section effectively distributed to support the entire segment; and

(3) At least 1 crosstie of the type specified in paragraph (c) and (d) of this section that is located at a joint location as specified in paragraph (f) of this section.
(c) Each 39-foot segment of: Class 1 track shall have 5 crossties; Classes 2 and 3 track shall have 8 crossties; and Classes 4 and 5 track shall have 12 crossties, which are not:

   (1) Broken through;
   (2) Split or otherwise impaired to the extent the crossties will allow the ballast to work through, or will not hold spikes or rail fasteners;
   (3) So deteriorated that the tie plate or base of rail can move laterally more than 1/2 inch relative to the crossties; or
   (4) Cut by the tie plate through more than 40 percent of a tie's thickness.

(d) Each 39 foot segment of track shall have the minimum number and type of crossties as indicated in the following table (this paragraph (d) is applicable September 21, 2000)

<table>
<thead>
<tr>
<th>Class of Track</th>
<th>Tangent track and curves ≥ 2 degrees</th>
<th>Tumouts and curved track over 2 degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1 track ............</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Class 2 track ............</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Class 3 track ............</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Class 4 and 5 track ....</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

(e) Crossties counted to satisfy the requirements set forth in the table in paragraph (d) of this section shall not be __

(1) Broken through;
(2) Split or otherwise impaired to the extent the crossties will allow the ballast to work through, or will not hold spikes or rail fasteners;
(3) So deteriorated that the tie plate or base of rail can move laterally 1/2 inch relative to the crossties; or
(4) Cut by the tie plate through more than 40 percent of a crosstie’s thickness this paragraph (e) is applicable September 21, 2000.

(f) Class 1 and Class 2 track shall have one crosstie whose centerline is within 24 inches of each rail joint location, and Classes 3 through 5 track shall have one crosstie whose centerline is within 18 inches of each rail joint location or, two crossties whose centerlines are within 24 inches either side of each rail joint location. The relative position of these ties is described in the following diagrams:
For track constructed without crossties, such as slab track, track connected directly to bridge structural components and track over servicing pits, the track structure shall meet the requirements of paragraphs (b)(1)(i), (ii), and (iii) of this section.

§213.110  Gage Restraint Measurement Systems

(a) This provides for the implementation of a GRMS, supplemented by the use of a PTLF, to determine compliance with the crosstie and rail fastener requirements specified in §§ 213.109 and 213.127. Track owners electing to implement this technology must provide the appropriate FRA Regional Office with notification that specifically identifies the line segment(s) where GRMS will be used. The appropriate FRA office is the headquarters location for the FRA region in which the GRMS designated line segment is located. The notification must be provided to FRA at least 30 days prior to the designation of any line segment which will be subject to the requirements of this section. Track owners must also provide FRA with at least 10 days notice prior to the removal of a line segment from GRMS designation.

(b) This paragraph specifies what information track owners should include in their notifications to FRA about line segments designated for GRMS inspection. The
information must include, at a minimum, the segment's timetable designation, milepost limits, track class, million gross tons of traffic per year, and any other identifying characteristics of the segment.

(c) This paragraph describes minimum design requirements for GRMS vehicles. Track owners must submit to FRA sufficient technical data so that the agency can establish whether or not the track owner is in compliance with these design requirements. The paragraph requires that gage must be measured between the heads of the rail at an interval not exceeding 16 inches. The paragraph provides for design flexibility by establishing acceptable ranges for the lateral/vertical load ratio and the resulting lateral load severity, both of which can be satisfied by various load configurations, provided that the applied vertical load is not less than 10,000 pounds per rail.

(d), (e) and (f) The mathematical formulas prescribed in these paragraphs are to be used in the calculation of the Gage Widening Ratio (GWR) and the Projected Loaded Gage 24 (PLG 24). The accurate measurements of unloaded gage, GRMS loaded gage, and the lateral load applied are of critical importance because these measurements are used in the calculation of PLG 24 values and the values for GWR, values which comprise a direct measure of track strength. Therefore, to avoid any influence from adjacent loads, design requirements specify that the unloaded track gage must be measured by the GRMS vehicle at a point no less than 10 feet from any lateral or vertical load application. Loaded track gage measured by the GRMS vehicle shall be measured at a point no more than 12 inches from the lateral load application point.

The Task Group recommended that the loaded track gage measurement be taken at the point of application of the lateral load, as is the practice on existing in-service GRMS vehicles that use displacement transducers mounted on the instrumented wheelset. This final rule provides for the use of other gage measuring technologies, such as optical and laser gage measuring systems, by allowing the measurement of loaded gage to be taken no more than 12 inches from the lateral load application point.

Load severity is defined by the formula -- $S=L-cV$

Where --

$S$ = Load severity, defined as the lateral load applied to the fastener system (pounds).
$L$ = Actual lateral load applied (pounds).
$c$ = Coefficient of friction between rail/tie which is assigned a nominal value of (0.4).
$V$ = Actual vertical load applied (pounds).

The measured gage values shall be converted to a Projected Loaded Gage 24 (PLG 24) as follows --

$PLG\ 24 = UTG + A \times (LTG - UTG)$

Where --

$UTG$ = Unloaded track gage measured by the GRMS vehicle at a point no less than 10 feet from any lateral or vertical load application.
$LTG$ = Loaded track gage measured by the GRMS vehicle at a point no more than 12 inches from the lateral load application point.
A = The extrapolation factor used to convert the measured loaded gage to expected loaded gage under a 24,000 pound lateral load and a 33,000 pound vertical load. For all track --

\[ A = \frac{13.513}{(.001 \times L - .000258 \times V) - .009 \times (.001 \times L - .000258 \times V)^2} \]

Note: The A factor shall not exceed (3.184) under any valid loading configuration.

where --
\( L \) = Actual lateral load applied (pounds).
\( V \) = Actual vertical load applied (pounds).

The measured gage value shall be converted to a Gage Widening Ratio (GWR) as follows --

\[ \frac{LTG - UTG}{L} \times 16,000 \]

(g), (h) and (i) GRMS vehicles must be also capable of producing strip chart traces of all the parameters specified in paragraph (l) of this section, as well as a printed exception report listing by magnitude and location all exceptions from these parameters. The exception report listing must be provided to the appropriate person designated as fully qualified under § 213.7 prior to the next inspection required under § 213.233 of this part.

(j) The track owner is required to institute procedures that will ensure the integrity of data collected by the GRMS and PTLF systems. Daily GRMS instrument verification procedures should ensure that measurements made on the ground of loaded and unloaded gage parameters correlate to those recorded by the instrumentation. Track owners shall maintain documented calibration procedures on each GRMS vehicle and make them available upon request from an FRA representative. Track owners must also develop and implement the necessary PTLF inspection and maintenance procedures so that the 4,000-pound reading is accurate within plus/minus five percent.

(k) This paragraph recognizes the need for all persons designated as fully qualified under § 213.7 and whose territories are subject to the requirements of this section to receive training on the implementation of GRMS technology. The track owner, therefore is required to develop a formal GRMS training program which must be made available to FRA upon request. The training program must provide detailed instruction on the specific areas identified in this paragraph. In particular, the training must address basic GRMS operational procedures, interpretation and handling of exception reports, how to locate and verify GRMS defects in the field, remedial action requirements to be initiated when defects are verified, how to use and calibrate the PTLF, and the recordkeeping requirements associated with the implementation of GRMS technology.

(l) This paragraph specifies the parameters and threshold levels to be reported as a record of lateral restraint following an inspection by a GRMS vehicle. The regulation
requires that two levels of exceptions are reported during the GRMS inspection. Specific remedial actions are required for each level, as identified in the Remedial Action Table in this section. First Level exceptions are required to be immediately protected by a 10 mph speed restriction until verification and corrective action can be instituted. Second Level exceptions are to be monitored and maintained within the PTLF criteria outlined in paragraph (m) of this section.

Footnote 2 in the Remedial Action Table of this section recognizes that typical good track will increase in total gage by as much as 1/4 inch due to outward rail rotation under GRMS loading conditions. Accordingly, for Class 2 and Class 3 track, the GRMS loaded track gage values are also increased by 1/4 inch to a maximum of 58 inches. GRMS loaded track gage values in excess of 58 inches must always be considered First Level exceptions. This 1/4 inch allowance in gage applies only to GRMS loaded gage, and does not apply to PTLF gage measurements or to measurements made by more traditional methods.

<table>
<thead>
<tr>
<th>GRMS Parameter</th>
<th>If measurement value exceeds</th>
<th>Remedial action required</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTG</td>
<td>58 inches</td>
<td>First Level Exception</td>
</tr>
<tr>
<td>LTG</td>
<td>58 inches</td>
<td></td>
</tr>
<tr>
<td>PLG24</td>
<td>59 inches</td>
<td></td>
</tr>
<tr>
<td>GWR</td>
<td>1.0 inches</td>
<td></td>
</tr>
</tbody>
</table>

**Second Level Exception**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTG</td>
<td>57 3/4 inches</td>
<td>² Limit operating speed to no more than the maximum allowable under § 213.9 for Class 3 track; then verify location; and (1) maintain in compliance with PTLF criteria as described in paragraph (m) of this section; and (2) Maintain compliance with § 213.53(b) of this part as measured with the PTLF.</td>
</tr>
<tr>
<td>PLG24</td>
<td>58 inches</td>
<td></td>
</tr>
<tr>
<td>GWR</td>
<td>0.75 inches</td>
<td></td>
</tr>
</tbody>
</table>

[fn1] Definitions for the GRMS parameters referenced in this table are found in paragraph (p) of this section.
[fn2] This note recognizes that typical good track will increase in total gage by as much as 1/4 inch due to outward rail rotation under GRMS loading conditions. For Class 2 & 3 track, the GRMS LTG values are also increased by 1/4 inch to a maximum of 58 inches. However, for any Class of track, GRMS LTG values in excess of 58 inches are considered First Level exceptions and the appropriate remedial actions must be taken by the track owner. This 1/4 -inch increase in allowable gage applies only to GRMS LTG. For gage measured by traditional methods, or with the use of the PTLF, the table in § 213.53(b) will apply.

(m) While the remedial action table in paragraph (l) requires the use of the PTLF to measure compliance with the lateral restraint and gage requirements at identified exception locations in GRMS territory, paragraph (m) also provides for the use of a PTLF as an additional analytical tool by fully qualified § 213.7 individuals at other locations in GRMS territory. Paragraph (m) also describes the manner in which a PTLF must be used in GRMS territory, whether it is being used as an additional analytical tool or being used to meet the remedial action requirements set forth in paragraph (l). Compliance with §§ 213.109 and 213.127 will be demonstrated when a PTLF is applied and (1) the total gage widening at that location does not exceed 5/8 inch when increasing the applied force from 0 to 4,000 pounds, and (2) the gage of the track measured under 4,000 pounds of applied force does not exceed the allowable gage prescribed in § 213.53(b) of this section for the class of track involved. Gage widening in excess of 5/8 inch shall constitute a deviation from Class 1 standards.

(n) The track owner must maintain a record of the two most recent GRMS inspections at locations meeting the requirements specified in § 213.241(b). The records must indicate the location and nature of each First Level exception and, the nature and date of initiated remedial action, if any, for each First Level exception. First Level exceptions are described in the Remedial Action Table in Paragraph (l).

The track owner is not required to maintain records of Second Level exceptions. However, as required in paragraph (i), reports of all exceptions, including Second Level exceptions, must be provided to the appropriate fully qualified § 213.7 individuals prior to the next inspection required under § 213.233. Second Level exceptions are also described in the Remedial Action Table in Paragraph (l).

(o) On line segments where the annual tonnage exceeds two million gross tons, or where the maximum operating speeds for passenger trains exceeds 30 mph, GRMS inspections must be performed annually, with no more than 14 months between inspections. The maximum interval of 14 months is intended to provide some flexibility for scheduling when it may not be possible to schedule annual inspections within the same calendar month each year.

On line segments where the annual tonnage is two million gross tons or less and the maximum operating speed for passenger trains does not exceed 30 mph, the interval between GRMS inspections cannot exceed 24 months. This extended frequency is an attempt to make the technology more accessible to short line operators who may not have the financial or equipment resources available to larger railroads.
This subsection lists the following definitions: gage restraint measurement system; gage widening ratio; L/V ratio; load severity; loaded track gage; portable track loading fixture; projected loaded gage; and unloaded track gage.

§ 213.113 Defective Rails

(a) When an owner of track to which this part applies learns, through inspection or otherwise, that a rail in that track contains any of the defects listed in the following table, a person designated under § 213.7 shall determine whether or not the track may continue in use. If he determines that the track may continue in use, operation over the defective rail is not permitted until:

1. The rail is replaced; or
2. The remedial action prescribed in the table is initiated.

<table>
<thead>
<tr>
<th>Defect</th>
<th>Length of defect (inch)</th>
<th>Length of defect (inch)</th>
<th>Percent of rail head cross sectional area weakened by defect</th>
<th>Percent of rail head cross sectional area weakened by defect</th>
<th>If defective rail is not replaced the remedial action prescribed in note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transverse fissure</td>
<td>More than 70</td>
<td>Less than 5</td>
<td>70</td>
<td>5</td>
<td>B.</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>70</td>
<td>100</td>
<td>100</td>
<td>A2.</td>
</tr>
<tr>
<td>Compound fissure</td>
<td>70</td>
<td>5</td>
<td>70</td>
<td>5</td>
<td>B.</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>70</td>
<td>100</td>
<td>100</td>
<td>A.</td>
</tr>
<tr>
<td>Detail fracture</td>
<td>25</td>
<td>5</td>
<td>25</td>
<td>5</td>
<td>C.</td>
</tr>
<tr>
<td>Defect</td>
<td>Length of defect (inch)</td>
<td>Length of defect (inch)</td>
<td>Percent of rail head cross sectional area weakened by defect</td>
<td>Percent of rail head cross sectional area weakened by defect</td>
<td>If defective rail is not replaced the remedial action prescribed in note</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Engine burn fracture</td>
<td>More than 80</td>
<td>25</td>
<td></td>
<td></td>
<td>D.</td>
</tr>
<tr>
<td>Defective weld</td>
<td>100</td>
<td>80</td>
<td></td>
<td></td>
<td>[A2] or [E and H].</td>
</tr>
<tr>
<td>Horizontal split head</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td>[A] or [E and H].</td>
</tr>
<tr>
<td>Vertical split head</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>H and F.</td>
</tr>
<tr>
<td>Split web</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td>I and G.</td>
</tr>
<tr>
<td>Piped rail</td>
<td>(fn1)</td>
<td>(fn1)</td>
<td>(fn1)</td>
<td></td>
<td>A.</td>
</tr>
<tr>
<td>Head web separation</td>
<td>1/2</td>
<td>1</td>
<td></td>
<td></td>
<td>H and F.</td>
</tr>
<tr>
<td>Bolt hole crack</td>
<td>1</td>
<td>1 1/2</td>
<td></td>
<td></td>
<td>H and G.</td>
</tr>
<tr>
<td></td>
<td>1 1/2</td>
<td></td>
<td></td>
<td></td>
<td>B.</td>
</tr>
<tr>
<td></td>
<td>(fn1)</td>
<td>(fn1)</td>
<td>(fn1)</td>
<td></td>
<td>A.</td>
</tr>
<tr>
<td>Broken base</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
<td>D.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td>[A] or [E and I].</td>
</tr>
<tr>
<td>Ordinary break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A or E.</td>
</tr>
<tr>
<td>Damaged rail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D.</td>
</tr>
<tr>
<td>Flattened rail</td>
<td>Depth &gt; 3/8 and length &gt; 8.</td>
<td></td>
<td></td>
<td></td>
<td>H.</td>
</tr>
</tbody>
</table>

(fn1) break out in rail head
Notes:

A. Assigned person designated under § 213.7 to visually supervise each operation over defective rail.
   A2. Assign person designated under § 213.7 to make visual inspection. After a visual inspection, that person may authorize operation to continue without continuous visual supervision at a maximum of 10 m.p.h. for up to 24 hours prior to another such visual inspection or replacement or repair of the rail.

B. Limit operating speed over defective rail to that as authorized by a person designated under § 213.7(a), who has at least one year of supervisory experience in railroad track maintenance. The operating speed cannot be over 30 m.p.h. or the maximum allowable speed under § 213.9 for the class of track concerned, whichever is lower.

C. Apply joint bars bolted only through the outermost holes to defect within 20 days after it is determined to continue the track in use. In the case of Classes 3 through 5 track, limit operating speed over defective rail to 30 mph until joint bars are applied; thereafter limit speed to 50 mph or the maximum allowable speed under § 213.9 for the class of track concerned, whichever is lower. When a search for internal rail defects is conducted under § 213.237, and defects are discovered in Classes 2 through 5 which require remedial action C, the operating speed shall be limited to 50 m.p.h. or the maximum allowable speed under § 213.9 for the class of track concerned, whichever is lower, for a period not to exceed 4 days. if the defective rail has not been removed from the track or a permanent repair made within 4 days of the discovery, limit operating speed over the defective rail to 30 mph until joint bars are applied; thereafter, limit speed to 50 mph or the maximum allowable speed under § 213.9 for the class of track concerned, whichever is lower.

D. Apply joint bars bolted only through the outermost holes to defect within 10 days after it is determined to continue the track in use. In the case of Classes 3 through 5 track, limit operating speed over the defective rail to 30 mph or less as authorized by a person designated under § 213.7(a), who has at least one year of supervisory experience in railroad track maintenance, until joint bars are applied; thereafter, limit speed to 50 mph or the maximum allowable speed under § 213.9 for the class of track concerned, whichever is lower.

E. Apply joint bars to defect and bolt in accordance with § 213.121(d) and (e).

F. Inspect rail 90 days after it is determined to continue the track in use.

G. Inspect rail 30 days after it is determined to continue the track in use.
H. Limit operating speed over defective rail to 50 mph or the maximum allowable speed under § 213.9 for the class of track concerned, whichever is lower.

I. Limit operating speed over defective rail to 30 mph or the maximum allowable speed under § 213.9 for the class of track concerned, whichever is lower.

Under this section the regulations define transverse fissure, compound fissure, horizontal split head, vertical split head, split web, piped rail, broken base, detail fracture, engine burn factor, ordinary break, damaged rail.

§213.115 Rail End Mismatch

Any mismatch of rails at joints may not be more than set forth in the following table.

<table>
<thead>
<tr>
<th>Class of track</th>
<th>On the trend of the rail ends (inch)</th>
<th>On the gauge side of the rail ends (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/4</td>
<td>1/4</td>
</tr>
<tr>
<td>2</td>
<td>1/4</td>
<td>3/16</td>
</tr>
<tr>
<td>3</td>
<td>3/16</td>
<td>3/16</td>
</tr>
<tr>
<td>4,5</td>
<td>1/8</td>
<td>1/8</td>
</tr>
</tbody>
</table>

§ 213.119 Continuous welded rail (CWR); general

Each track owner with track constructed of CWR shall have in effect and comply with written procedures which address the installation, adjustment, maintenance and inspection of CWR, and a training program for the application of those procedures, which shall be submitted to the Federal Railroad Administration by December 21, 1998. FRA reviews each plan for compliance with the following:

(a) Procedures for the installation and adjustment of CWR which include:

(1) Designation of a desired rail installation temperature range for the geographic area in which the CWR is located; and

(2) De-stressing procedures/methods which address proper attainment of the desired rail installation temperature range when adjusting CWR.

(b) Rail anchoring or fastening requirements that will provide sufficient restraint to limit longitudinal rail and crosstie movement to the extent practical, and specifically addressing CWR rail anchoring or fastening patterns on bridges, bridge approaches, and at other locations where possible longitudinal rail and crosstie movement associated with normally expected train-induced forces, is restricted.

(c) Procedures which specifically address maintaining a desired rail installation temperature range when cutting CWR including rail repairs, intrack welding,
and in conjunction with adjustments made in the area of tight track, a track buckle, or a pull-apart. Rail repair practices shall take into consideration existing rail temperature so that __

(1) When rail is removed, the length installed shall be determined by taking into consideration the existing rail temperature and the desired rail installation temperature range; and

(2) Under no circumstances should rail be added when the rail temperature is below that designated by paragraph (a)(1) of this section, without provisions for later adjustment.

(d) Procedures which address the monitoring of CWR in curved track for inward shifts of alinement toward the center of the curve as a result of disturbed track.

(e) Procedures which control train speed on CWR track when __

(1) Maintenance work, track rehabilitation, track roadbed or ballast section and reduces the lateral or longitudinal resistance of the track; and

(2) In formulating the procedures under this paragraph (e), the track owner shall:

(i) Determine the speed required, and the duration and subsequent removal of any speed restriction based on the restoration of the ballast, along with sufficient ballast re-consolidation to stabilize the track to a level that can accommodate expected train-induced forces. Ballast re-consolidation can be achieved through either the passage of train tonnage or mechanical stabilization procedures, or both; and

(ii) Take into consideration the type of crossties used.

(f) Procedures which prescribe when physical track inspections are to be performed to detect buckling prone conditions in CWR track. At a minimum, these procedures shall address inspecting track to identify:

(1) Locations where tight or kindly rail conditions are likely to occur;

(2) Locations where track work of the nature described in paragraph (e)(1) of this section have recently been performed; and

(3) In formulating the procedures under this paragraph (f), the track owner shall:

(i) Specify the timing of the inspection; and

(ii) Specify the appropriate remedial actions to be taken when buckling prone conditions are found.
(g) The track owner shall have in effect a comprehensive training program for the application of these written CWR procedures, with provisions for periodic re-training, for those individuals designated under § 213.7 of this part as qualified to supervise the installation, adjustment, and maintenance of CWR track and to perform inspections of CWR track.

(h) The track owner shall prescribe recordkeeping requirements necessary to provide an adequate history of track constructed with CWR. At a minimum, these records must include:

1. Rail temperature, location and date of CWR installations. This record shall be retained for at least one year; and

2. A record of any CWR installation or maintenance work that does not conform with the written procedures. Such record shall include the location of the rail and maintained until the CWR is brought into conformance with such procedures.

(i) As used in this section __

1. Adjusting/de-stressing means the procedure by which a rail’s temperature is re-adjusted to the desired value. It typically consists of cutting the rail and removing rail anchoring devices, which provides for the necessary expansion and contraction, and then re-assembling the track.

2. Buckling incident means the formation of a lateral misalignment sufficient in magnitude to constitute a deviation from the Class 1 requirements specified in § 213.55 of this part. These normally occur when rail temperatures are relatively high and are caused by high longitudinal compressive forces.

3. Continuous welded rail (CWR) means rail that has been welded together into lengths exceeding 400 feet.

4. Desired rail installation temperature range means the rail temperature range, within a specific geographical area, at which forces in CWR should not cause a buckling incident in extreme heat, or a pull-apart during extreme cold weather.

5. Disturbed track means the disturbance of the roadbed or ballast section, as a result of track maintenance or any other event, which reduces the lateral or longitudinal resistance of the track, or both.

6. Mechanical stabilization means a type of procedure used to restore track resistance to disturbed track following certain maintenance operations. This procedure may incorporate dynamic track stabilizers or ballast consolidators, which are units or work equipment that are used as a substitute for the stabilization action provided by the passage of tonnage trains.

7. Rail anchors means those devices which are attached to the rail
and bear against the side of the crosstie to control longitudinal rail movement. Certain types of rail fasteners also act as rail anchors and control longitudinal rail movement by exerting a downward clamping force on the upper surface of the rail base.

(8) *Rail temperature* means the temperature of the rail, measured with a rail thermometer.

(9) *Tight/kinky rail* means CWR which exhibits minute alinement irregularities which indicate that the rail is in a considerable amount of compression.

(10) *Train-induced forces* means the vertical, longitudinal, and lateral dynamic forces which are generated during train movement and which can contribute to the buckling potential.

(11) *Track lateral resistance* means the resistance provided to the rail/crosstie structure against lateral displacement.

(12) *Track longitudinal resistance* means the resistance provided by the rail anchors/rail fasteners and the section to the rail/crosstie structure against longitudinal displacement.

§ 213.121 Rail Joints

(a) Each rail joint, insulated joint, and compromise joint must be of the proper design and dimensions for the rail on which it is applied.

(b) If a joint bar on Classes 3 through 5 track is cracked, broken, or because of wear allows vertical movement of either rail when all bolts are tight, it must be replaced.

(c) If a joint bar is cracked or broken between the middle two bolt holes it must be replaced.

(d) In the case of conventional jointed track, each rail must be bolted with at least two bolts at each joint in Classes 2 through 5 track, and with at least one bolt at each joint.

(e) In the case of continuous welded rail track, each rail must be bolted with at least two bolts at each joint.

(f) Each joint bar must be held in position by trackbolts tightened to allow the joint bar to firmly support the abutting rail ends and to allow longitudinal movement of the rail in the joint to accommodate expansion and contraction due to temperature variations. When out-of-face, no slip, joint-to-rail contact exists by design, the requirements of this paragraph do not apply. Those locations are considered to be continuous welded rail track and must meet all the requirements for continuous welded rail track prescribed in this part.

(g) No rail or angle bar having a torch cut or burned bolt hole may be used in Classes 3 through 5 track.
§ 213.122 Torch cut rail

(a) Except as a temporary repair in emergency situations no rail having a torch cut end shall be used in Classes 3 through 5 track. When a rail end is torch cut in emergency situations, train speed over that rail end shall not exceed the maximum allowable for Class 2 track. For existing torch cut rail ends in Classes 3 through 5 track the following shall apply:

(1) Within one year of September 21, 1998, all torch cut rail ends in Class 5 track shall be removed;

(2) Within two years of September 21, 1998, all torch cut rail ends in Class 4 track shall be removed; and

(3) Within one year of September 21, 1998, all torch cut rail ends in Class 3 track over which regularly scheduled passenger trains operate, shall be inventoried by the track owner.

(b) Following the expiration of the time limits specified in paragraphs (a)(1), (2), and (3) of this section, any torch cut rail end not removed from Classes 4 and 5 track, or any torch cut rail end not inventoried in Class 3 track over which regularly scheduled passenger trains operate, shall be removed within 30 days of discovery. Train speed over that rail end shall not exceed the maximum allowable for Class 2 track until removed.

§ 213.123 Tie plates

(a) In Classes 3 through 5 track where timber crossties are in use there shall be tie plates under the running rails on at least eight of any 10 consecutive ties.

(b) In Classes 3 through 5 track no metal object which causes a concentrated load by solely supporting a rail shall be allowed between the base of the rail and the bearing surface of the tie plate. This paragraph (b) is applicable September 21, 1999.

§ 213.127 Rail fastening systems

Track shall be fastened by a system of components which effectively maintains gage within the limits prescribed in § 213.53(b). Each component of each such system shall be evaluated to determine whether gage is effectively being maintained.

§ 213.133 Turnouts and track crossings

(a) In turnouts and track crossings, the fastenings must be intact and maintained so as to keep the components securely in place. Also, each switch, frog, and guard rail must be kept free of obstructions that may interfere with the passage of wheels.

(b) Classes 4 through 5 track must be equipped with rail anchors through and on each side of track crossings and turnouts, to restrain rail movement affecting the position of
switch points and frogs. For Class 3 tracks this paragraph is applicable September 21, 1999.

(c) Each flangeway at turnouts and track crossings must be at least 1 1/2 inches wide.

§ 213.135 Switches

(a) Each stock rail must be securely seated in switch plates, but care must be used to avoid canting the rail by overtightening the rail braces.

(b) Each switch point must fit its stock rail properly, with the switch stand in either of its closed positions to allow wheels to pass the switch point. Lateral and vertical movement of a stock rail in the switch plates or of a switch plate on a tie must not adversely affect the fit of the switch point to the stock rail.

(c) Each switch must be maintained so that the outer edge of the wheel tread cannot contact the gauge side of the stock rail.

(d) The heel of each switch rail must be secure and the bolts in each heel must be keep tight.

(e) Each switch stand and connecting rod must be securely fastened and operable without excessive lost motion.

(f) Each throw lever must be maintained so that it cannot be operated with the lock or keeper in place.

(g) Each switch position indicator must be clearly visible at all times.

(h) Unusually chipped or worn switch points must be repaired or replaced. Metal flow must be removed to insure proper closure.

(i) Tongue and Plate Mate switches which by design exceed Class 1 and excepted track maximum gage limits are permitted in Class 1 and excepted track.

§ 213.137 Frogs

(a) The flangeway depth measured from a plane across wheel-bearing area of a frog on Class 1 track may not be less than 1 3/8 inches, or less than 1 1/2 inches on Classes 2 through 5 track.

(b) If a frog point is chipped, broken, or wore more than 5/8 of an inch down and 6 inches back, operating speed over that frog may not be more than 10 miles per hour.

(c) If the tread portion of a frog casting is worn down more than 3/8 of an inch below the original contour, operating speed over that frog may not be more than 10 miles per hour.

(d) Where frogs are designed as flange-bearing, flangeway depth may be less than
shown for Class 1 if operated at Class 1 speeds.

§ 213.139 Spring rail frogs

(a) The outer edge of a wheel tread may not contact the gage side of a spring wing rail.

(b) The toe of each wing rail must be solidly tamped and fully and tightly bolted.

(c) Each frog with a bolt hole defect or head-web separation must be replaced.

(d) Each spring must have a compression sufficient to hold the wing rail against the point rail.

(e) The clearance between the holddown housing and the horn may not be more than 1/4 of an inch.

§ 213.141 Self-guarded frogs

(a) The raised guard on a self-guarded frog may not be worn more than 3/8 of an inch.

(b) If repairs are made to the self-guarded frog without removing it from service, the guarding face must be restored before rebuilding the point.

§ 213.143 Frog guard rails and guard faces; gage

The guard check and guard face gages in frogs must be within the limits prescribed in the following table

<table>
<thead>
<tr>
<th>Class of track</th>
<th>Guard check gauge—the distance between the gauge line of a frog to the guard line of its guard rail or guarding face, measured across the track at right angles to the gauge line, may not be less than—</th>
<th>Guard face gauge—the distance between guard lines, measured across the track at right angles to the gauge line, may not be more than—</th>
</tr>
</thead>
<tbody>
<tr>
<td>1..................</td>
<td>4'6 1/8&quot;</td>
<td>4'5 1/4&quot;</td>
</tr>
<tr>
<td>2..................</td>
<td>4'6 1/4&quot;</td>
<td>4'5 1/8&quot;</td>
</tr>
<tr>
<td>3 &amp; 4..............</td>
<td>4'6 3/8&quot;</td>
<td>4'5 1/8&quot;</td>
</tr>
<tr>
<td>5..................</td>
<td>4'6 1/2&quot;</td>
<td>4'5&quot;</td>
</tr>
</tbody>
</table>

1A line along that side of the flangeway which is nearer to the center of the track and at the same elevation as the gauge line.

2A line 5/8 inch below the top of the center line of the head of the running rail, or corresponding location of the tread portion of the track structure.
Subpart E--Track Appliances and Track-Related Devices

§ 213.201 -- Scope.
This subpart prescribes minimum requirements for certain track appliances and track-related devices.

§ 213.205 -- Derails.
(a) Each derail shall be clearly visible.
(b) When in a locked position, a derail shall be free of lost motion which would prevent it from performing its intended function.
(c) Each derail shall be maintained to function as intended.
(d) Each derail shall be properly installed for the rail to which it is applied. (This paragraph (d) is applicable September 21, 1999.)

Subpart F--Inspection

§ 213.231 -- Scope.
This subpart prescribes requirements for the frequency and manner of inspecting track to detect deviations from the standards prescribed in this part.
§ 213.233 -- Track inspections.
(a) All track shall be inspected in accordance with the schedule prescribed in paragraph (c) of this section by a person designated under § 213.7.
(b) Each inspection shall be made on foot or by riding over the track in a vehicle at a speed that allows the person making the inspection to visually inspect the track structure for compliance with this part. However, mechanical, electrical, and other track inspection devices may be used to supplement visual inspection. If a vehicle is used for visual inspection, the speed of the vehicle may not be more than 5 miles per hour when passing over track crossings and turnouts, otherwise, the inspection vehicle speed shall be at the sole discretion of the inspector, based on track conditions and inspection requirements. When riding over the track in a vehicle, the inspection will be subject to the following conditions-

(1) One inspector in a vehicle may inspect up to two tracks at one time provided that the inspector's visibility remains unobstructed by any cause and that the second track is not centered more than 30 feet from the track upon which the inspector is riding;

(2) Two inspectors in one vehicle may inspect up to four tracks at a time provided that the inspectors' visibility remains unobstructed by any cause and that each track being inspected is centered within 39 feet from the track upon which the inspectors are riding;

(3) Each main track is actually traversed by the vehicle or inspected on foot at least once every two weeks, and each siding is actually traversed by the vehicle or inspected on foot at least once every month. On high density commuter railroad lines where track time does not permit an on track vehicle inspection, and where track centers are 15 foot or less, the requirements of this paragraph (b)(3) will not apply; and

(4) Track inspection records shall indicate which track(s) are traversed by the vehicle or inspected on foot as outlined in paragraph (b)(3) of this section.

(c) Each track inspection shall be made in accordance with the following schedule-

<table>
<thead>
<tr>
<th>Class of track</th>
<th>Type of track</th>
<th>Required frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exempted track and Class 1, 2,</td>
<td>Main track and sidings</td>
<td>Weekly with at least 3 calendar days interval between inspections, or before and 3 track use, if the track is used less than once a week, or twice weekly with at least 1 calendar day interval between inspections, if the track carries passenger trains or more than 10 million gross tons of traffic during the preceding calendar year.</td>
</tr>
<tr>
<td>Exempted track and Class 1, 2, and 3 track Class 4 and 5 track</td>
<td>Other than main track and sidings</td>
<td>Monthly with at least 20 calendar day interval between inspections.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Twice weekly with at least calendar Day interval between inspections.</td>
</tr>
</tbody>
</table>
(d) If the person making the inspection finds a deviation from the requirements of this part, the inspector shall immediately initiate remedial action.

Note to § 213.233: Except as provided in paragraph (b) of this section, no part of this section will in any way be construed to limit the inspector's discretion as it involves inspection speed and sight distance.

§ 213.235 -- Inspection of switches, track crossings, and lift rail assemblies or other transition devices on moveable bridges.

(a) Except as provided in paragraph (c) of this section, each switch, turnout, track crossing, and moveable bridge lift rail assembly or other transition device shall be inspected on foot at least monthly.

(b) Each switch in Classes 3 through 5 track that is held in position only by the operating mechanism and one connecting rod shall be operated to all of its positions during one inspection in every 3 month period.

(c) In the case of track that is used less than once a month, each switch, turnout, track crossing, and moveable bridge lift rail assembly or other transition device shall be inspected on foot before it is used.

§ 213.237 -- Inspection of rail.

(a) In addition to the track inspections required by § 213.233, a continuous search for internal defects shall be made of all rail in Classes 4 through 5 track, and Class 3 track over which passenger trains operate, at least once every 40 million gross tons (mgt) or once a year, whichever interval is shorter. On Class 3 track over which passenger trains do not operate such a search shall be made at least once every 30 mgt or once a year, whichever interval is longer. (This paragraph (a) is applicable January 1, 1999.

(b) Inspection equipment shall be capable of detecting defects between joint bars, in the area enclosed by joint bars.

(c) Each defective rail shall be marked with a highly visible marking on both sides of the web and base.

(d) If the person assigned to operate the rail defect detection equipment being used determines that, due to rail surface conditions, a valid search for internal defects could not be made over a particular length of track, the test on that particular length of track cannot be considered as a search for internal defects under paragraph (a) of this section. (This paragraph (d) is not retroactive to tests performed prior to September 21, 1998.

(e) If a valid search for internal defects cannot be conducted for reasons described in paragraph (d) of this section, the track owner shall, before the expiration of time or tonnage limits-

(1) Conduct a valid search for internal defects;

(2) Reduce operating speed to a maximum of 25 miles per hour until such time as a valid search for internal defects can be made; or

(3) Remove the rail from service.

§ 213.239 -- Special inspections.

In the event of fire, flood, severe storm, or other occurrence which might have damaged track structure, a special inspection shall be made of the track involved as soon as possible after the occurrence and, if possible, before the operation of any train over that track.
§ 213.241 -- Inspection records.

(a) Each owner of track to which this part applies shall keep a record of each inspection required to be performed on that track under this subpart.

(b) Each record of an inspection under §§ 213.4, 213.233, and 213.235 shall be prepared on the day the inspection is made and signed by the person making the inspection. Records shall specify the track inspected, date of inspection, location and nature of any deviation from the requirements of this part, and the remedial action taken by the person making the inspection. The owner shall designate the location(s) where each original record shall be maintained for at least one year after the inspection covered by the record. The owner shall also designate one location, within 100 miles of each state in which they conduct operations, where copies of records which apply to those operations are either maintained or can be viewed following 10 days notice by the Federal Railroad Administration.

(c) Rail inspection records shall specify the date of inspection, the location and nature of any internal defects found, the remedial action taken and the date thereof, and the location of any intervals of track not tested per § 213.237(d). The owner shall retain a rail inspection record for at least two years after the inspection and for one year after remedial action is taken.

(d) Each owner required to keep inspection records under this section shall make those records available for inspection and copying by the Federal Railroad Administration.

(e) For purposes of compliance with the requirements of this section, an owner of track may maintain and transfer records through electronic transmission, storage, and retrieval provided that-

1. The electronic system be designed so that the integrity of each record is maintained through appropriate levels of security such as recognition of an electronic signature, or other means, which uniquely identify the initiating person as the author of that record. No two persons shall have the same electronic identity;

2. The electronic storage of each record shall be initiated by the person making the inspection within 24 hours following the completion of that inspection;

3. The electronic system shall ensure that each record cannot be modified in any way, or replaced, once the record is transmitted and stored;

4. Any amendment to a record shall be electronically stored apart from the record which it amends. Each amendment to a record shall be uniquely identified as to the person making the amendment;

5. The electronic system shall provide for the maintenance of inspection records as originally submitted without corruption or loss of data;

6. Paper copies of electronic records and amendments to those records, that may be necessary to document compliance with this part shall be made available for inspection and copying by the Federal Railroad Administration at the locations specified in paragraph (b) of this section; and

7. Track inspection records shall be kept available to persons who performed the inspections and to persons performing subsequent inspections.

Subpart G--Train Operations at Track Classes 6 and Higher
§ 213.301 -- Scope of subpart.
This subpart applies to all track used for the operation of trains at a speed greater than 90 m.p.h. for passenger equipment and greater than 80 m.p.h. for freight equipment.

§ 213.303 -- Responsibility for compliance.
(a) Any owner of track to which this subpart applies who knows or has notice that the track does not comply with the requirements of this subpart, shall-
   (1) Bring the track into compliance; or
   (2) Halt operations over that track.
(b) If an owner of track to which this subpart applies assigns responsibility for the track to another person (by lease or otherwise), notification of the assignment shall be provided to the appropriate FRA Regional Office at least 30 days in advance of the assignment. The notification may be made by any party to that assignment, but shall be in writing and include the following-
   (1) The name and address of the track owner;
   (2) The name and address of the person to whom responsibility is assigned (assignee);
   (3) A statement of the exact relationship between the track owner and the assignee;
   (4) A precise identification of the track;
   (5) A statement as to the competence and ability of the assignee to carry out the duties of the track owner under this subpart;
   (6) A statement signed by the assignee acknowledging the assignment to that person of responsibility for purposes of compliance with this subpart.
(c) The Administrator may hold the track owner or the assignee or both responsible for compliance with this subpart and subject to the penalties under § 213.15.
(d) When any person, including a contractor for a railroad or track owner, performs any function required by this part, that person is required to perform that function in accordance with this part.

§ 213.305 -- Designation of qualified individuals; general qualifications.
Each track owner to which this subpart applies shall designate qualified individuals responsible for the maintenance and inspection of track in compliance with the safety requirements prescribed in this subpart. Each individual, including a contractor or an employee of a contractor who is not a railroad employee, designated to:
(a) Supervise restorations and renewals of track shall meet the following minimum requirements:
   (1) At least:
      (i) Five years of responsible supervisory experience in railroad track maintenance in track Class 4 or higher and the successful completion of a course offered by the employer or by a college level engineering program, supplemented by special on the job training emphasizing the techniques to be employed in the supervision, restoration, and renewal of high speed track; or
      (ii) A combination of at least one year of responsible supervisory experience in track maintenance in Class 4 or higher and the successful completion of a minimum of 80 hours of specialized training in the maintenance of high speed track provided by the employer or by a college level engineering...
program, supplemented by special on the job training provided by the employer with emphasis on the maintenance of high speed track; or

(iii) A combination of at least two years of experience in track maintenance in track Class 4 or higher and the successful completion of a minimum of 120 hours of specialized training in the maintenance of high speed track provided by the employer or by a college level engineering program supplemented by special on the job training provided by the employer with emphasis on the maintenance of high speed track.

(2) Demonstrate to the track owner that the individual:

(i) Knows and understands the requirements of this subpart;
(ii) Can detect deviations from those requirements; and
(iii) Can prescribe appropriate remedial action to correct or safely compensate for those deviations; and

(3) Be authorized in writing by the track owner to prescribe remedial actions to correct or safely compensate for deviations from the requirements of this subpart and successful completion of a recorded examination on this subpart as part of the qualification process.

(b) Inspect track for defects shall meet the following minimum qualifications:

(1) At least:

(i) Five years of responsible experience inspecting track in Class 4 or above and the successful completion of a course offered by the employer or by a college level engineering program, supplemented by special on the job training emphasizing the techniques to be employed in the inspection of high speed track;
(ii) A combination of at least one year of responsible experience in track inspection in Class 4 or above and the successful completion of a minimum of 80 hours of specialized training in the inspection of high speed track provided by the employer or by a college level engineering program, supplemented by special on the job training provided by the employer with emphasis on the inspection of high speed track.
(iii) A combination of at least two years of experience in track maintenance in Class 4 or above and the successful completion of a minimum of 120 hours of specialized training in the inspection of high speed track provided by the employer or from a college level engineering program, supplemented by special on the job training provided by the employer with emphasis on the inspection of high speed track.

(2) Demonstrate to the track owner that the individual:

(i) Knows and understands the requirements of this subpart;
(ii) Can detect deviations from those requirements; and
(iii) Can prescribe appropriate remedial action to correct or safely compensate for those deviations; and

(3) Be authorized in writing by the track owner to prescribe remedial actions to correct or safely compensate for deviations from the requirements in this subpart and successful completion of a recorded examination on this subpart as part of the qualification process.

(c) Individuals designated under paragraphs (a) or (b) of this section that inspect continuous welded rail (CWR) track or supervise the installation, adjustment, and maintenance of CWR in accordance with the written procedures established by the track owner shall have:
(1) Current qualifications under either paragraph (a) or (b) of this section;
(2) Successfully completed a training course of at least eight hours duration specifically developed for the application of written CWR procedures issued by the track owner; and
(3) Demonstrated to the track owner that the individual:
   (i) Knows and understands the requirements of those written CWR procedures;
   (ii) Can detect deviations from those requirements; and
   (iii) Can prescribe appropriate remedial action to correct or safely compensate for those deviations; and
(4) Written authorization from the track owner to prescribe remedial actions to correct or safely compensate for deviations from the requirements in those procedures and successful completion of a recorded examination on those procedures as part of the qualification process. The recorded examination may be written, or it may be a computer file with the results of an interactive training course.

d) Persons not fully qualified to supervise certain renewals and inspect track as outlined in paragraphs (a), (b) and (c) of this section, but with at least one year of maintenance of way or signal experience, may pass trains over broken rails and pull apart provided that-
   (1) The track owner determines the person to be qualified and, as part of doing so, trains, examines, and re-examines the person periodically within two years after each prior examination on the following topics as they relate to the safe passage of trains over broken rails or pull apart: rail defect identification, crosstie condition, track surface and alinement, gage restraint, rail end mismatch, joint bars, and maximum distance between rail ends over which trains may be allowed to pass. The sole purpose of the examination is to ascertain the person's ability to effectively apply these requirements and the examination may not be used to disqualify the person from other duties. A minimum of four hours training is adequate for initial training;
   (2) The person deems it safe, and train speeds are limited to a maximum of 10 m.p.h. over the broken rail or pull apart;
   (3) The person shall watch all movements over the broken rail or pull apart and be prepared to stop the train if necessary; and
   (4) Person(s) fully qualified under § 213.305 of this subpart are notified and dispatched to the location as soon as practicable for the purpose of authorizing movements and effectuating temporary or permanent repairs.

e) With respect to designations under paragraphs (a), (b), (c) and (d) of this section, each track owner shall maintain written records of:
   (1) Each designation in effect;
   (2) The basis for each designation, including but not limited to:
      (i) The exact nature of any training courses attended and the dates thereof;
      (ii) The manner in which the track owner has determined a successful completion of that training course, including test scores or other qualifying results;
   (3) Track inspections made by each individual as required by § 213.369. These records shall be made available for inspection and copying by the Federal Railroad Administration during regular business hours.

§ 213.307 -- Class of track: operating speed limits.
(a) Except as provided in paragraph (b) of this section and §§ 213.329, 213.337(a) and 213.345(c), the following maximum allowable operating speeds apply:

<table>
<thead>
<tr>
<th>Class of Track</th>
<th>Maximum Operating Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 6 track</td>
<td>110 m.p.h.</td>
</tr>
<tr>
<td>Class 7 track</td>
<td>125 m.p.h.</td>
</tr>
<tr>
<td>Class 8 track</td>
<td>160 m.p.h. fn2</td>
</tr>
<tr>
<td>Class 9 track</td>
<td>200 m.p.h.</td>
</tr>
</tbody>
</table>

fn1 Freight may be transported at passenger train speeds if the following conditions are met:

1. The vehicles utilized to carry such freight are of equal dynamic performance and have been qualified in accordance with Sections 213.345 and 213.329(d) of this subpart.
2. The load distribution and securement in the freight vehicle will not adversely affect the dynamic performance of the vehicle. The axle loading pattern is uniform and does not exceed the passenger locomotive axle loadings utilized in passenger service operating at the same maximum speed.
3. No carrier may accept or transport a hazardous material, as defined at 49 CFR 171.8, except as provided in Column 9A of the Hazardous Materials Table (49 CFR 172.101) for movement in the same train as a passenger-carrying vehicle or in Column 9B of the Table for movement in a train with no passenger-carrying vehicles.

fn2 Operating speeds in excess of 150 m.p.h. are authorized by this part only in conjunction with a rule of particular applicability addressing other safety issues presented by the system.

(b) If a segment of track does not meet all of the requirements for its intended class, it is to be reclassified to the next lower class of track for which it does meet all of the requirements of this subpart. If a segment does not meet all of the requirements for Class 6, the requirements for Classes 1 through 5 apply.

§ 213.309 -- Restoration or renewal of track under traffic conditions.

(a) Restoration or renewal of track under traffic conditions is limited to the replacement of worn, broken, or missing components or fastenings that do not affect the safe passage of trains.

(b) The following activities are expressly prohibited under traffic conditions:

1. Any work that interrupts rail continuity, e.g., as in joint bar replacement or rail replacement;
2. Any work that adversely affects the lateral or vertical stability of the track with the exception of spot tamping an isolated condition where not more than 15 lineal feet of track are involved at any one time and the ambient air temperature is not above 95 degrees Fahrenheit; and
3. Removal and replacement of the rail fastenings on more than one tie at a time within 15 feet.
§ 213.311 -- Measuring track not under load.
When unloaded track is measured to determine compliance with requirements of this subpart, evidence of rail movement, if any, that occurs while the track is loaded shall be added to the measurements of the unloaded track.

§ 213.317 -- Waivers.
(a) Any owner of track to which this subpart applies may petition the Federal Railroad Administrator for a waiver from any or all requirements prescribed in this subpart.
(b) Each petition for a waiver under this section shall be filed in the manner and contain the information required by §§ 211.7 and 211.9 of this chapter.
(c) If the Administrator finds that a waiver is in the public interest and is consistent with railroad safety, the Administrator may grant the waiver subject to any conditions the Administrator deems necessary. Where a waiver is granted, the Administrator publishes a notice containing the reasons for granting the waiver.

§ 213.319 -- Drainage.
Each drainage or other water carrying facility under or immediately adjacent to the roadbed shall be maintained and kept free of obstruction, to accommodate expected water flow for the area concerned.

§ 213.321 -- Vegetation.
Vegetation on railroad property which is on or immediately adjacent to roadbed shall be controlled so that it does not -
(a) Become a fire hazard to track-carrying structures;
(b) Obstruct visibility of railroad signs and signals:
   (1) Along the right of way, and
   (2) At highway-rail crossings;
(c) Interfere with railroad employees performing normal trackside duties;
(d) Prevent proper functioning of signal and communication lines; or
(e) Prevent railroad employees from visually inspecting moving equipment from their normal duty stations.

§ 213.323 -- Track gage.
(a) Gage is measured between the heads of the rails at right-angles to the rails in a plane five-eighths of an inch below the top of the rail head.
(b) Gage shall be within the limits prescribed in the following table:

<table>
<thead>
<tr>
<th>Class of track</th>
<th>The gage must be at least--</th>
<th>But not more than--</th>
<th>The change of gage within 31 feet must not be greater than</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>8&quot;</td>
<td>4'9 1/4 &quot;</td>
<td>1/2 &quot;</td>
</tr>
<tr>
<td>7</td>
<td>4'8&quot;</td>
<td>4'9 1/4 &quot;</td>
<td>1/2 &quot;</td>
</tr>
<tr>
<td>8</td>
<td>4'8&quot;</td>
<td>4'9 1/4 &quot;</td>
<td>1/2 &quot;</td>
</tr>
<tr>
<td>9</td>
<td>4'8 1/4 &quot;</td>
<td>4'9 1/4 &quot;</td>
<td>1/2 &quot;</td>
</tr>
</tbody>
</table>
§ 213.327 -- Alinement.

(a) Uniformity at any point along the track is established by averaging the measured mid-chord offset values for nine consecutive points centered around that point and which are spaced according to the following table:

<table>
<thead>
<tr>
<th>Chord length</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>31'</td>
<td>7'9&quot;</td>
</tr>
<tr>
<td>62'</td>
<td>15'6&quot;</td>
</tr>
<tr>
<td>124'</td>
<td>31'0&quot;</td>
</tr>
</tbody>
</table>

(b) For a single deviation, alinement may not deviate from uniformity more than the amount prescribed in the following table:

<table>
<thead>
<tr>
<th>Class of track</th>
<th>The deviation from uniformity of the mid-chord offset for a 31-foot chord may not be more than-- (inches)</th>
<th>The deviation from uniformity of the mid-chord offset for a 62-foot chord may not be more than-- (inches)</th>
<th>The deviation from uniformity of the mid-chord offset for a 124-foot chord may not be more than-- (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1/2</td>
<td>3/4</td>
<td>1 1/2</td>
</tr>
<tr>
<td>7</td>
<td>1/2</td>
<td>1/2</td>
<td>1 1/4</td>
</tr>
<tr>
<td>8</td>
<td>1/2</td>
<td>1/2</td>
<td>3/4</td>
</tr>
<tr>
<td>9</td>
<td>1/2</td>
<td>1/2</td>
<td>3/4</td>
</tr>
</tbody>
</table>

(c) For three or more non-overlapping deviations from uniformity in track alinement occurring within a distance equal to five times the specified chord length, each of which exceeds the limits in the following table, each owner of the track to which this subpart applies shall maintain the alinement of the track within the limits prescribed for each deviation:

<table>
<thead>
<tr>
<th>Class of track</th>
<th>The deviation from uniformity of the mid-chord offset for a 31-foot chord may not be more than-- (inches)</th>
<th>The deviation from uniformity of the mid-chord offset for a 62-foot chord may not be more than-- (inches)</th>
<th>The deviation from uniformity of the mid-chord offset for a 124-foot chord may not be more than-- (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3/8</td>
<td>1/2</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>3/8</td>
<td>3/8</td>
<td>7/8</td>
</tr>
<tr>
<td>8</td>
<td>3/8</td>
<td>3/8</td>
<td>1/2</td>
</tr>
<tr>
<td>9</td>
<td>3/8</td>
<td>3/8</td>
<td>1/2</td>
</tr>
</tbody>
</table>
§ 213.329 -- Curves, elevation and speed limitations.

(a) The maximum crosslevel on the outside rail of a curve may not be more than 7 inches. The outside rail of a curve may not be more than 1/2 inch lower than the inside rail.

(b) (1) The maximum allowable operating speed for each curve is determined by the following formula:

\[ V_{\text{max}} = \sqrt{\frac{E_a + 3}{0.0007D}} \]

Where-

\( V_{\text{max}} \) = Maximum allowable operating speed (miles per hour).

\( E_a \) = Actual elevation of the outside rail (inches)

Actual elevation for each 155 foot track segment in the body of the curve is determined by averaging the elevation for 10 points through the segment at 15.5 foot spacing. If the curve length is less than 155 feet, average the points through the full length of the body of the curve. If \( E[u] \) exceeds 4 inches, the \( V_{\text{max}} \) formula applies to the spirals on both ends of the curve.

\( D \) = Degree of curvature (degrees)

Degree of curvature is determined by averaging the degree of curvature over the same track segment as the elevation.

3 = 3 inches of unbalance.

(2) Appendix A includes tables showing maximum allowable operating speeds computed in accordance with this formula for various elevations and degrees of curvature for track speeds greater than 90 m.p.h.
(c) For rolling stock meeting the requirements specified in paragraph (d) of this section, the maximum operating speed for each curve may be determined by the following formula:

\[ V_{\text{max}} = \sqrt{\frac{E_a + E_u}{0.0007D}} \]

Where-

\( V_{\text{max}} \) = Maximum allowable operating speed (miles per hour).

\( E_a \) = Actual elevation of the outside rail (inches)  \( n4 \).

\( D \) = Degree of curvature (degrees)  \( n5 \).

\( E_u \) = Unbalanced elevation (inches).

(d) Qualified equipment may be operated at curving speeds determined by the formula in paragraph (c) of this section, provided each specific class of equipment is approved for operation by the Federal Railroad Administration and the railroad demonstrates that:

1. When positioned on a track with uniform super-elevation, \( E_a \), reflecting the intended target cant deficiency, \( E_u \), no wheel of the equipment unloads to a value of 60 percent or less of its static value on perfectly level track and, for passenger-carrying equipment, the roll angle between the floor of the vehicle and the horizontal does not exceed 5.7 degrees.

2. When positioned on a track with a uniform 7-inch superelevation, no wheel unloads to a value less than 60% of its static value on perfectly level track and, for passenger-carrying equipment, the angle, measured about the roll axis, between the floor of the vehicle and the horizontal does not exceed 8.6 degrees.

(e) The track owner shall notify the Federal Railroad Administrator no less than thirty calendar days prior to any proposed implementation of the higher curving speeds allowed when the "\( E_u \)" term, above, will exceed three inches. This notification shall be in writing and shall contain, at a minimum, the following information:

1. A complete description of the class of equipment involved, including schematic diagrams of the suspension system and the location of the center of gravity above top of rail;

2. A complete description of the test procedure  \( n6 \) and instrumentation used to qualify the equipment and the maximum values for wheel unloading and roll angles which were observed during testing;

\( n6 \) The test procedure may be conducted in a test facility whereby all wheels on one side (right or left) of the equipment are raised or lowered by six and then seven inches, the vertical wheel loads under each wheel are measured and a level is used to record the angle through which the floor of the vehicle has been rotated.

3. Procedures or standards in effect which relate to the maintenance of the suspension system for the particular class of equipment;
(4) Identification of line segment on which the higher curving speeds are proposed to be implemented.
(f) A track owner, or an operator of a passenger or commuter service, who provides passenger or commuter service over trackage of more than one track owner with the same class of equipment, may provide written notification to the Federal Railroad Administrator with the written consent of the other affected track owners.

§ 213.331 -- Track surface.
(a) For a single deviation in track surface, each owner of the track to which this subpart applies shall maintain the surface of its track within the limits prescribed in the following table:

<table>
<thead>
<tr>
<th>Class of track</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>(in.)</td>
<td>(in.)</td>
<td>(in.)</td>
<td>(in.)</td>
<td>(in.)</td>
</tr>
</tbody>
</table>

The deviation from uniform profile on either rail at the midordinate of a 31-foot chord may not be more than

- 1
- 1
- 3/4
- 1/2

The deviation from uniform profile on either rail at the midordinate of a 62-foot chord may not be more than

- 1
- 1
- 1
- 3/4

The deviation from uniform profile on either rail at the midordinate of a 124-foot chord may not be more than

- 1
- 3/4
- 1
- 1/2
- 1
- 1/4

The difference in crosslevel between any two points less than 62 feet apart may not be more than

- 1
- 1/2
- 1
- 1/2
- 1
- 1/2

[fn1] Uniformity for profile is established by placing the midpoint of the specified chord at the point of maximum measurement.

[fn2] However, to control harmonics on jointed track with staggered joints, the crosslevel differences shall not exceed 1 1/4 inches in all of six consecutive pairs of joints, as created by 7 joints. Track with joints staggered less than 10 feet shall not be considered as having staggered joints. Joints within the 7 low joints outside of the regular joint spacing shall not be considered as joints for purposes of this footnote.

(b) For three or more non-overlapping deviations in track surface occurring within a distance equal to five times the specified chord length, each of which exceeds the limits in the following table, each owner of the track to which this subpart applies shall maintain the surface of the track within the limits prescribed for each deviation:
<table>
<thead>
<tr>
<th>Track surface</th>
<th>6 (in.)</th>
<th>Class of track</th>
<th>7 (in.)</th>
<th>8 (in.)</th>
<th>9 (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The deviation from uniform profile on either rail at the midordinate of a 31-foot chord may not be more than</td>
<td>3/4</td>
<td>3/4</td>
<td>1/2</td>
<td>3/8</td>
<td></td>
</tr>
<tr>
<td>The deviation from uniform profile on either rail at the midordinate of a 62-foot chord may not be more than</td>
<td>3/4</td>
<td>3/4</td>
<td>3/4</td>
<td>1/2</td>
<td></td>
</tr>
<tr>
<td>The deviation from uniform profile on either rail at the midordinate of a 124-foot chord may not be more than</td>
<td>1 1/4</td>
<td>1</td>
<td>7/8</td>
<td>7/8</td>
<td></td>
</tr>
</tbody>
</table>

§ 213.333 -- Automated vehicle inspection systems.

(a) For track Class 7, a qualifying Track Geometry Measurement System (TGMS) vehicle shall be operated at least twice within 120 calendar days with not less than 30 days between inspections. For track Classes 8 and 9, it shall be operated at least twice within 60 days with not less than 15 days between inspections.

(b) A qualifying TGMS shall meet or exceed minimum design requirements which specify that-

   (1) Track geometry measurements shall be taken no more than 3 feet away from the contact point of wheels carrying a vertical load of no less than 10,000 pounds per wheel;

   (2) Track geometry measurements shall be taken and recorded on a distance-based sampling interval which shall not exceed 2 feet; and

   (3) Calibration procedures and parameters are assigned to the system which assure that measured and recorded values accurately represent track conditions. Track geometry measurements recorded by the system shall not differ on repeated runs at the same site at the same speed more than 1/8 inch.

(c) A qualifying TGMS shall be capable of measuring and processing the necessary track geometry parameters, at an interval of no more than every 2 feet, which enables the system to determine compliance with: § 213.323, Track gage; § 213.327, Alinement; § 213.329, Curves; elevation and speed limitations; and § 213.331, Track surface.

(d) A qualifying TGMS shall be capable of producing, within 24 hours of the inspection, output reports that -

   (1) Provide a continuous plot, on a constant-distance axis, of all measured track geometry parameters required in paragraph (c) of this section;

   (2) Provide an exception report containing a systematic listing of all track geometry conditions which constitute an exception to the class of track over the segment surveyed.

(e) The output reports required under paragraph (c) of this section shall contain sufficient location identification information which enable field forces to easily locate indicated exceptions.
(f) Following a track inspection performed by a qualifying TGMS, the track owner shall, within two days after the inspection, field verify and institute remedial action for all exceptions to the class of track.

(g) The track owner shall maintain for a period of one year following an inspection performed by a qualifying TGMS, copy of the plot and the exception printout for the track segment involved, and additional records which:

1. Specify the date the inspection was made and the track segment involved; and
2. Specify the location, remedial action taken, and the date thereof, for all listed exceptions to the class.

(h) For track Classes 8 and 9, a qualifying Gage Restraint Measurement System (GRMS) shall be operated at least once annually with at least 180 days between inspections to continuously compare loaded track gage to unloaded gage under a known loading condition. The lateral capacity of the track structure shall not permit a gage widening ratio (GWR) greater than 0.5 inches.

(i) A GRMS shall meet or exceed minimum design requirements which specify that:

1. Gage restraint shall be measured between the heads of the rail-
   (i) At an interval not exceeding 16 inches;
   (ii) Under an applied vertical load of no less than 10,000 pounds per rail;
   (iii) Under an applied lateral load which provides for lateral/vertical load ratio of between 0.5 and 1.25 n7, and a load severity greater than 3,000 pounds but less than 8,000 pounds per rail. Load severity is defined by the formula-

\[ S = \frac{L - cV}{c} \]

where:

\( S \) = Load severity, defined as the lateral load applied to the fastener system (pounds).

\( L \) = Actual lateral load applied (pounds).

\( c \) = Coefficient of friction between rail/tie which is assigned a nominal value of (0.4).

\( V \) = Actual vertical load applied (pounds).

(2) The measured gage value shall be converted to a gage widening ratio (GWR) as follows:

\[ \text{GWR} = \frac{(LTG - UTG)}{L} \times 16,000 \]
Where:

UTG=Unloaded track gage measured by the GRMS vehicle at a point no less than 10 feet from any lateral or vertical load application.

LTG=Loaded track gage measured by the GRMS vehicle at the point of application of the lateral load.

L=Actual lateral load applied (pounds).

(j) At least one vehicle in one train per day operating in Classes 8 and 9 shall be equipped with functioning on-board truck frame and carbody accelerometers. Each track owner shall have in effect written procedures for the notification of track personnel when on-board accelerometers on trains in Classes 8 and 9 indicate a possible track-related condition.

(k) For track Classes 7, 8 and 9, an instrumented car having dynamic response characteristics that are representative of other equipment assigned to service or a portable device that monitors on-board instrumentation on trains shall be operated over the track at the revenue speed profile at a frequency of at least twice within 60 days with not less than 15 days between inspections. The instrumented car or the portable device shall monitor vertically and laterally oriented accelerometers placed near the end of the vehicle at the floor level. In addition, accelerometers shall be mounted on the truck frame. If the carbody lateral, carbody vertical, or truck frame lateral safety limits in the following table of vehicle/track interaction safety limits are exceeded, speeds will be reduced until these safety limits are not exceeded.

(l) For track Classes 8 and 9, an instrumented car having dynamic response characteristics that are representative of other equipment assigned to service shall be operated over the track at the revenue speed profile annually with not less than 180 days between inspections. The instrumented car shall be equipped with functioning instrumented wheelsets to measure wheel/rail forces. If the wheel/rail force limits in the following table of vehicle/track interaction safety limits are exceeded, speeds will be reduced until these safety limits are not exceeded.

(m) The track owner shall maintain a copy of the most recent exception printouts for the inspections required under paragraphs (k) and (l) of this section.
# Vehicle/Track Interaction Safety Limits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Safety limit</th>
<th>Filter/window</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel/Rail Forces [fn1]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Wheel Vertical Load Ratio</td>
<td>≥ 0.1</td>
<td>5 ft</td>
<td>No wheel of the equipment shall be permitted to unload to less than 10% of the static vertical wheel load. The static vertical wheel load is defined as the load that the wheel would carry when stationary on level track. The vertical wheel load limit shall be increased by the amount of measurement error.</td>
</tr>
<tr>
<td>Single Wheel L/V Ratio</td>
<td>≤ ( \tan \alpha \cdot 0.5 ) ( / (1 + 0.5 \tan \alpha) )</td>
<td>5 ft</td>
<td>The ratio of the lateral force that any wheel exerts on an individual rail to the vertical force exerted by the same wheel on the rail shall be less than the safety limit calculated for the wheel's flange angle.</td>
</tr>
<tr>
<td>Net Axle L/V Ratio</td>
<td>≤ 0.5</td>
<td>5 ft</td>
<td>The net lateral force exerted by any axle on the track shall not exceed 50% of the static vertical load that the axle exerts on the track.</td>
</tr>
<tr>
<td>Truck Side L/V Ratio</td>
<td>≤ 0.6</td>
<td>5 ft</td>
<td>The ratio of the lateral forces that the wheels on one side of any truck exert on an individual rail to the vertical forces exerted by the same wheels on that rail shall be less than 0.6.</td>
</tr>
<tr>
<td><strong>Accelerations</strong></td>
<td><strong>Carbody Lateral</strong></td>
<td>≤ 0.5 g peak-to-peak</td>
<td>10 Hz 1 sec window</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------</td>
<td>----------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Carbody Vertical fn2</td>
<td>≤ 0.6 g peak-to-peak</td>
<td>10 Hz 1 sec window</td>
<td>The peak-to-peak accelerations, measured as the algebraic difference between the two extreme values of measured acceleration in a one-second time period, shall not exceed 0.6 g.</td>
</tr>
<tr>
<td><strong>Truck Lateral</strong></td>
<td>≤ 0.4 g RMS mean-removed</td>
<td>10 Hz 2 sec window</td>
<td>Truck hunting [fn4] shall not develop below the maximum authorized speed.</td>
</tr>
</tbody>
</table>

[fn1] The lateral and vertical wheel forces shall be measured with instrumented wheelsets with the measurements processed through a low pass filter with a minimum cut-off frequency of 25 Hz. The sample rate for wheel force data shall be at least 250 samples/sec.

[fn2] Carbody lateral and vertical accelerations shall be measured near the car ends at the floor level.

[fn3] Truck accelerations in the lateral direction shall be measured on the truck frame. The measurements shall be processed through a filter having a pass band of 0.5 to 10 Hz.

[fn4] Truck hunting is defined as a sustained cyclic oscillation of the truck which is evidenced by lateral accelerations in excess of 0.4 g root mean square (mean-removed) for 2 seconds.

§ 213.334 -- Ballast; general.
Unless it is otherwise structurally supported, all track shall be supported by material which will-
(a) Transmit and distribute the load of the track and railroad rolling equipment to the subgrade;
(b) Restrain the track laterally, longitudinally, and vertically under dynamic loads imposed by railroad rolling equipment and thermal stress exerted by the rails;
(c) Provide adequate drainage for the track; and
(d) Maintain proper track crosslevel, surface, and alinement.

§ 213.335 -- Crossties.
(a) Crossties shall be made of a material to which rail can be securely fastened.
(b) Each 39 foot segment of track shall have-
   (1) A sufficient number of crossties which in combination provide effective support that will-
(i) Hold gage within the limits prescribed in § 213.323(b);
(ii) Maintain surface within the limits prescribed in § 213.331; and
(iii) Maintain alinement within the limits prescribed in § 213.327.

(2) The minimum number and type of crossties specified in paragraph (c) of this
section effectively distributed to support the entire segment; and
(3) Crossties of the type specified in paragraph (c) of this section that are located at a joint location as specified in paragraph (e) of this section.

(c) For non-concrete tie construction, each 39 foot segment of Class 6 track shall have fourteen crossties; Classes 7, 8 and 9 shall have 18 crossties which are not-
(1) Broken through;
(2) Split or otherwise impaired to the extent the crossties will allow the ballast to work through, or will not hold spikes or rail fasteners;
(3) So deteriorated that the tie plate or base of rail can move laterally 3/8 inch relative to the crossties;
(4) Cut by the tie plate through more than 40 percent of a crosstie's thickness;
(5) Configured with less than 2 rail holding spikes or fasteners per tie plate; or
(6) So unable, due to insufficient fastener toeload, to maintain longitudinal restraint and maintain rail hold down and gage.

(d) For concrete tie construction, each 39 foot segment of Class 6 track shall have fourteen crossties, Classes 7, 8 and 9 shall have 16 crossties which are not-
(1) So deteriorated that the prestress strands are ineffective or withdrawn into the tie at one end and the tie exhibits structural cracks in the rail seat or in the gage of track;
(2) Configured with less than 2 fasteners on the same rail;
(3) So deteriorated in the vicinity of the rail fastener such that the fastener assembly may pull out or move laterally more than 3/8 inch relative to the crosstie;
(4) So deteriorated that the fastener base plate or base of rail can move laterally more than 3/8 inch relative to the crossties;
(5) So deteriorated that rail seat abrasion is sufficiently deep so as to cause loss of rail fastener toeload;
(6) Completely broken through; or
(7) So unable, due to insufficient fastener toeload, to maintain longitudinal restraint and maintain rail hold down and gage.

(e) Class 6 track shall have one non-defective crosstie whose centerline is within 18 inches of the rail joint location or two crossties whose center lines are within 24 inches either side of the rail joint location. Class 7, 8, and 9 track shall have two non-defective ties within 24 inches each side of the rail joint.

(f) For track constructed without crossties, such as slab track and track connected directly to bridge structural components, the track structure shall meet the requirements of paragraphs (b)(1)(i), (ii), and (iii) of this section.

(g) In Classes 7, 8 and 9 there shall be at least three non-defective ties each side of a defective tie.

(h) Where timber crossties are in use there shall be tie plates under the running rails on at least nine of 10 consecutive ties.

(i) No metal object which causes a concentrated load by solely supporting a rail shall be allowed between the base of the rail and the bearing surface of the tie plate.

§ 213.337 -- Defective rails.
(a) When an owner of track to which this part applies learns, through inspection or otherwise, that a rail in that track contains any of the defects listed in the following table, a person designated under § 213.305 shall determine whether or not the track may continue in use. If the person determines that the track may continue in use, operation over the defective rail is not permitted until-

(1) The rail is replaced; or

(2) The remedial action prescribed in the table is initiated-
### Remedial Action

<table>
<thead>
<tr>
<th>Defect</th>
<th>Length of defect (inch)</th>
<th>Percent of rail head cross sectional area weakened by defect</th>
<th>If defect rail is not replaced take the remedial action prescribed in note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transverse fissure</td>
<td>More than</td>
<td>But not more than</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less than</td>
<td>But not less than</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compound fissure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detail fracture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine burn fracture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fracture Defective weld</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>5</td>
<td>C.</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>25</td>
<td>D.</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>80</td>
<td>[A2] or [E and H]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>[A] or [E and H].</td>
</tr>
<tr>
<td>Horizontal split head</td>
<td>1</td>
<td>2</td>
<td>H and F.</td>
</tr>
<tr>
<td>Vertical split head</td>
<td>2</td>
<td>4</td>
<td>I and G.</td>
</tr>
<tr>
<td>Split web</td>
<td>4</td>
<td></td>
<td>B.</td>
</tr>
<tr>
<td>Piped rail</td>
<td></td>
<td></td>
<td>A.</td>
</tr>
<tr>
<td>Head web separation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolt hole crack</td>
<td>1/2</td>
<td>1</td>
<td>H and F.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1/2</td>
<td>H and G.</td>
</tr>
<tr>
<td></td>
<td>1/2</td>
<td></td>
<td>B.</td>
</tr>
<tr>
<td></td>
<td>(‘)</td>
<td>(‘)</td>
<td>A.</td>
</tr>
<tr>
<td>Broken base</td>
<td>1</td>
<td>6</td>
<td>D.</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td>[A] or [E and I].</td>
</tr>
<tr>
<td>Ordinary break</td>
<td></td>
<td></td>
<td>A or E.</td>
</tr>
<tr>
<td>Damaged rail</td>
<td></td>
<td></td>
<td>D.</td>
</tr>
<tr>
<td>Flattened rail</td>
<td>Depth &gt; 3/8 and</td>
<td></td>
<td>H.</td>
</tr>
<tr>
<td></td>
<td>Length ≥ 8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(‘) Indicates break out in rail head.

### Notes:

A. Assign person designated under § 213.305 to visually supervise each operation over defective rail.

A2. Assign person designated under § 213.305 to make visual inspection. That person may authorize operation to continue without visual supervision at a maximum of 10 m.p.h. for up to 24 hours prior to another such visual inspection or replacement or repair of the rail.
B. Limit operating speed over defective rail to that as authorized by a person designated under § 213.305(a)(1)(i) or (ii). The operating speed cannot be over 30 m.p.h.

C. Apply joint bars bolted only through the outermost holes to defect within 20 days after it is determined to continue the track in use. Limit operating speed over defective rail to 30 m.p.h. until joint bars are applied; thereafter, limit speed to 50 m.p.h. When a search for internal rail defects is conducted under § 213.339 and defects are discovered which require remedial action C, the operating speed shall be limited to 50 m.p.h., for a period not to exceed 4 days. If the defective rail has not been removed from the track or a permanent repair made within 4 days of the discovery, limit operating speed over the defective rail to 30 m.p.h. until joint bars are applied; thereafter, limit speed to 50 m.p.h.

D. Apply joint bars bolted only through the outermost holes to defect within 10 days after it is determined to continue the track in use. Limit operating speed over the defective rail to 30 m.p.h. or less as authorized by a person designated under § 213.305(a)(1)(i) or (ii) until joint bars are applied; thereafter, limit speed to 50 m.p.h.

E. Apply joint bars to defect and bolt in accordance with § 213.351(d) and (e).

F. Inspect rail 90 days after it is determined to continue the track in use.

G. Inspect rail 30 days after it is determined to continue the track in use.

H. Limit operating speed over defective rail to 50 m.p.h.

I. Limit operating speed over defective rail to 30 m.p.h.

(b) As used in this section-

1. Transverse fissure means a progressive crosswise fracture starting from a crystalline center or nucleus inside the head from which it spreads outward as a smooth, bright, or dark, round or oval surface substantially at a right angle to the length of the rail. The distinguishing features of a transverse fissure from other types of fractures or defects are the crystalline center or nucleus and the nearly smooth surface of the development which surrounds it.

2. Compound fissure means a progressive fracture originating in a horizontal split head which turns up or down in the head of the rail as a smooth, bright, or dark surface progressing until substantially at a right angle to the length of the rail. Compound fissures require examination of both faces of the fracture to locate the horizontal split head from which they originate.

3. Horizontal split head means a horizontal progressive defect originating inside of the rail head, usually one-quarter inch or more below the running surface and progressing horizontally in all directions, and generally accompanied by a flat spot on the running surface. The defect appears as a crack lengthwise of the rail when it reaches the side of the rail head.

4. Vertical split head means a vertical split through or near the middle of the head, and extending into or through it. A crack or rust streak may show under the head close to the web or pieces may be split off the side of the head.

5. Split web means a lengthwise crack along the side of the web and extending into or through it.

6. Piped rail means a vertical split in a rail, usually in the web, due to failure of the shrinkage cavity in the ingot to unite in rolling.


8. Detail fracture means a progressive fracture originating at or near the surface of the rail head. These fractures should not be confused with transverse fissures, compound fissures, or other defects which have internal origins. Detail fractures may arise from shelly spots, head checks, or flaking.
Engine burn fracture means a progressive fracture originating in spots where driving wheels have slipped on top of the rail head. In developing downward they frequently resemble the compound or even transverse fissures with which they should not be confused or classified.

Ordinary break means a partial or complete break in which there is no sign of a fissure, and in which none of the other defects described in this paragraph (b) are found.

Damaged rail means any rail broken or injured by wrecks, broken, flat, or unbalanced wheels, slipping, or similar causes.

Flattened rail means a short length of rail, not a joint, which has flattened out across the width of the rail head to a depth of 3/8 inch or more below the rest of the rail. Flattened rail occurrences have no repetitive regularity and thus do not include corrugations, and have no apparent localized cause such as a weld or engine burn. Their individual length is relatively short, as compared to a condition such as head flow on the low rail of curves.

Bolt hole crack means a crack across the web, originating from a bolt hole, and progressing on a path either inclined upward toward the rail head or inclined downward toward the base. Fully developed bolt hole cracks may continue horizontally along the head/web or base/web fillet, or they may progress into and through the head or base to separate a piece of the rail end from the rail. Multiple cracks occurring in one rail end are considered to be a single defect. However, bolt hole cracks occurring in adjacent rail ends within the same joint shall be reported as separate defects.

Defective weld means a field or plant weld containing any discontinuities or pockets, exceeding 5 percent of the rail head area individually or 10 percent in the aggregate, oriented in or near the transverse plane, due to incomplete penetration of the weld metal between the rail ends, lack of fusion between weld and rail end metal, entrainment of slag or sand, under-bead or other shrinkage cracking, or fatigue cracking. Weld defects may originate in the rail head, web, or base, and in some cases, cracks may progress from the defect into either or both adjoining rail ends.

Head and web separation means a progressive fracture, longitudinally separating the head from the web of the rail at the head fillet area.

§ 213.339 -- Inspection of rail in service.

(a) A continuous search for internal defects shall be made of all rail in track at least twice annually with not less than 120 days between inspections.

(b) Inspection equipment shall be capable of detecting defects between joint bars, in the area enclosed by joint bars.

(c) Each defective rail shall be marked with a highly visible marking on both sides of the web and base.

(d) If the person assigned to operate the rail defect detection equipment being used determines that, due to rail surface conditions, a valid search for internal defects could not be made over a particular length of track, the test on that particular length of track cannot be considered as a search for internal defects under § 213.337(a).

(e) If a valid search for internal defects cannot be conducted for reasons described in paragraph (d) of this section, the track owner shall, before the expiration of time limits-

(1) Conduct a valid search for internal defects;
(2) Reduce operating speed to a maximum of 25 miles per hour until such time as a valid search for internal defects can be made; or
(3) Remove the rail from service.

§ 213.341 -- Initial inspection of new rail and welds.

The track owner shall provide for the initial inspection of newly manufactured rail, and for initial inspection of new welds made in either new or used rail. A track owner may demonstrate compliance with this section by providing for:
(a) In-service inspection - A scheduled periodic inspection of rail and welds that have been placed in service, if conducted in accordance with the provisions of § 213.339, and if conducted not later than 90 days after installation, shall constitute compliance with paragraphs (b) and (c) of this section;
(b) Mill inspection - A continuous inspection at the rail manufacturer's mill shall constitute compliance with the requirement for initial inspection of new rail, provided that the inspection equipment meets the applicable requirements specified in § 213.339. The track owner shall obtain a copy of the manufacturer's report of inspection and retain it as a record until the rail receives its first scheduled inspection under § 213.339;
(c) Welding plant inspection - A continuous inspection at a welding plant, if conducted in accordance with the provisions of paragraph (b) of this section, and accompanied by a plant operator's report of inspection which is retained as a record by the track owner, shall constitute compliance with the requirements for initial inspection of new rail and plant welds, or of new plant welds made in used rail;
(d) Inspection of field welds - An initial inspection of field welds, either those joining the ends of CWR strings or those made for isolated repairs, shall be conducted not less than one day and not more than 30 days after the welds have been made. The initial inspection may be conducted by means of portable test equipment. The track owner shall retain a record of such inspections until the welds receive their first scheduled inspection under § 213.339; and
(e) Each defective rail found during inspections conducted under paragraph (a) or (d) of this section shall be marked with highly visible markings on both sides of the web and base and the remedial action as appropriate under § 213.337 will apply.

§ 213.343 -- Continuous welded rail (CWR).

Each track owner with track constructed of CWR shall have in effect written procedures which address the installation, adjustment, maintenance and inspection of CWR, and a training program for the application of those procedures, which shall be submitted to the Federal Railroad Administration within six months following the effective date of this rule. FRA reviews each plan for compliance with the following:
(a) Procedures for the installation and adjustment of CWR which include:
   (1) Designation of a desired rail installation temperature range for the geographic area in which the CWR is located; and
   (2) De-stressing procedures/methods which address proper attainment of the desired rail installation temperature range when adjusting CWR.
(b) Rail anchoring or fastening requirements that will provide sufficient restraint to limit longitudinal rail and crosstie movement to the extent practical, and specifically addressing CWR rail anchoring or fastening patterns on bridges, bridge approaches, and
at other locations where possible longitudinal rail and crosstie movement associated with normally expected train-induced forces, is restricted.

(c) Procedures which specifically address maintaining a desired rail installation temperature range when cutting CWR including rail repairs, in-track welding, and in conjunction with adjustments made in the area of tight track, a track buckle, or a pull-apart. Rail repair practices shall take into consideration existing rail temperature so that:

(1) When rail is removed, the length installed shall be determined by taking into consideration the existing rail temperature and the desired rail installation temperature range; and

(2) Under no circumstances should rail be added when the rail temperature is below that designated by paragraph (a)(1) of this section, without provisions for later adjustment.

(d) Procedures which address the monitoring of CWR in curved track for inward shifts of alinement toward the center of the curve as a result of disturbed track.

(e) Procedures which control train speed on CWR track when -

(1) Maintenance work, track rehabilitation, track construction, or any other event occurs which disturbs the roadbed or ballast section and reduces the lateral and/or longitudinal resistance of the track; and

(2) In formulating the procedures under this paragraph (e), the track owner shall-

(i) Determine the speed required, and the duration and subsequent removal of any speed restriction based on the restoration of the ballast, along with sufficient ballast re-consolidation to stabilize the track to a level that can accommodate expected train-induced forces. Ballast re-consolidation can be achieved through either the passage of train tonnage or mechanical stabilization procedures, or both; and

(ii) Take into consideration the type of crossties used.

(f) Procedures which prescribe when physical track inspections are to be performed to detect buckling prone conditions in CWR track. At a minimum, these procedures shall address inspecting track to identify -

(1) Locations where tight or kinky rail conditions are likely to occur;

(2) Locations where track work of the nature described in paragraph (e)(1) of this section have recently been performed; and

(3) In formulating the procedures under this paragraph (f), the track owner shall-

(i) Specify the timing of the inspection; and

(ii) Specify the appropriate remedial actions to be taken when buckling prone conditions are found.

(g) The track owner shall have in effect a comprehensive training program for the application of these written CWR procedures, with provisions for periodic re-training, for those individuals designated under § 213.305(c) of this part as qualified to supervise the installation, adjustment, and maintenance of CWR track and to perform inspections of CWR track.

(h) The track owner shall prescribe recordkeeping requirements necessary to provide an adequate history of track constructed with CWR. At a minimum, these records shall include:

(1) Rail temperature, location and date of CWR installations. This record shall be retained for at least one year; and
(2) A record of any CWR installation or maintenance work that does not conform with the written procedures. Such record shall include the location of the rail and be maintained until the CWR is brought into conformance with such procedures.

(i) As used in this section-

(1) Adjusting/de-stressing means the procedure by which a rail's temperature is re-adjusted to the desired value. It typically consists of cutting the rail and removing rail anchoring devices, which provides for the necessary expansion and contraction, and then re-assembling the track.

(2) Buckling incident means the formation of a lateral mis-alignment sufficient in magnitude to constitute a deviation of 5 inches measured with a 62-foot chord. These normally occur when rail temperatures are relatively high and are caused by high longitudinal compressive forces.

(3) Continuous welded rail (CWR) means rail that has been welded together into lengths exceeding 400 feet.

(4) Desired rail installation temperature range means the rail temperature range, within a specific geographical area, at which forces in CWR should not cause a buckling incident in extreme heat, or a pull-apart during extreme cold weather.

(5) Disturbed track means the disturbance of the roadbed or ballast section, as a result of track maintenance or any other event, which reduces the lateral or longitudinal resistance of the track, or both.

(6) Mechanical stabilization means a type of procedure used to restore track resistance to disturbed track following certain maintenance operations. This procedure may incorporate dynamic track stabilizers or ballast consolidators, which are units of work equipment that are used as a substitute for the stabilization action provided by the passage of tonnage trains.

(7) Rail anchors means those devices which are attached to the rail and bear against the side of the crosstie to control longitudinal rail movement. Certain types of rail fasteners also act as rail anchors and control longitudinal rail movement by exerting a downward clamping force on the upper surface of the rail base.

(8) Rail temperature means the temperature of the rail, measured with a rail thermometer.

(9) Tight/kinky rail means CWR which exhibits minute alinement irregularities which indicate that the rail is in a considerable amount of compression.

(10) Train-induced forces means the vertical, longitudinal, and lateral dynamic forces which are generated during train movement and which can contribute to the buckling potential.

(11) Track lateral resistance means the resistance provided to the rail/crosstie structure against lateral displacement.

(12) Track longitudinal resistance means the resistance provided by the rail anchors/rail fasteners and the ballast section to the rail/crosstie structure against longitudinal displacement.

§ 213.345 -- Vehicle qualification testing.

(a) All rolling stock types which operate at Class 6 speeds and above shall be qualified for operation for their intended track classes in order to demonstrate that the vehicle dynamic response to track alinement and geometry variations are within acceptable limits to assure safe operation. Rolling stock operating in Class 6 within one
year prior to the promulgation of this subpart shall be considered as being successfully qualified for Class 6 track and vehicles presently operating at Class 7 speeds by reason of conditional waivers shall be considered as qualified for Class 7.

(b) The qualification testing shall ensure that, at any speed less than 10 m.p.h. above the proposed maximum operating speed, the equipment will not exceed the wheel/rail force safety limits and the truck lateral accelerations specified in § 213.333, and the testing shall demonstrate the following:

(1) The vertical acceleration, as measured by a vertical accelerometer mounted on the car floor, shall be limited to no greater than 0.55g single event, peak-to-peak.

(2) The lateral acceleration, as measured by a lateral accelerometer mounted on the car floor, shall be limited to no greater than 0.3g single event, peak-to-peak; and

(3) The combination of the lateral acceleration (L) and the vertical acceleration (V) within any period of two consecutive seconds as expressed by the square root of (V² + L²) shall be limited to no greater than 0.604, where L may not exceed 0.3g and V may not exceed 0.55g.

(c) To obtain the test data necessary to support the analysis required in paragraphs (a) and (b) of this section, the track owner shall have a test plan which shall consider the operating practices and conditions, signal system, road crossings and trains on adjacent tracks during testing. The track owner shall establish a target maximum testing speed (at least 10 m.p.h. above the maximum proposed operating speed) and target test and operating conditions and conduct a test program sufficient to evaluate the operating limits of the track and equipment. The test program shall demonstrate vehicle dynamic response as speeds are incrementally increased from acceptable Class 6 limits to the target maximum test speeds. The test shall be suspended at that speed where any of the safety limits specified in paragraph (b) are exceeded.

(d) At the end of the test, when maximum safe operating speed is known along with permissible levels of cant deficiency, an additional run shall be made with the subject equipment over the entire route proposed for revenue service at the speeds the railroad will request FRA to approve for such service and a second run again at 10 m.p.h. above this speed. A report of the test procedures and results shall be submitted to FRA upon the completions of the tests. The test report shall include the design flange angle of the equipment which shall be used for the determination of the lateral to vertical wheel load safety limit for the track/vehicle interaction safety measurements required per § 213.333(k).

(e) As part of the submittal required in paragraph (d) of the section, the operator shall include an analysis and description of the signal system and operating practices to govern operations in Classes 7 and 8. This statement shall include a statement of sufficiency in these areas for the class of operation. Operation at speeds in excess of 150 m.p.h. is authorized only in conjunction with a rule of particular applicability addressing other safety issues presented by the system.

(f) Based on test results and submissions, FRA will approve a maximum train speed and value of cant deficiency for revenue service.

§ 213.347 -- Automotive or railroad crossings at grade.

(a) There shall be no at-grade (level) highway crossings, public or private, or rail-to-rail crossings at-grade on Class 8 and 9 track.
If train operation is projected at Class 7 speed for a track segment that will include rail-highway grade crossings, the track owner shall submit for FRA's approval a complete description of the proposed warning/barrier system to address the protection of highway traffic and high speed trains. Trains shall not operate at Class 7 speeds over any track segment having highway-rail grade crossings unless:

1. An FRA-approved warning/barrier system exists on that track segment; and
2. All elements of that warning/barrier system are functioning.

§ 213.349 -- Rail end mismatch.

Any mismatch of rails at joints may not be more than that prescribed by the following table:

<table>
<thead>
<tr>
<th>Class of track</th>
<th>Any mismatch of rails at joints may not be more than the following--</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On the tread of the rail ends</td>
</tr>
<tr>
<td>Class 6, 7, 8 and 9</td>
<td>1/8</td>
</tr>
</tbody>
</table>

§ 213.351 -- Rail joints.

(a) Each rail joint, insulated joint, and compromise joint shall be of a structurally sound design and dimensions for the rail on which it is applied.
(b) If a joint bar is cracked, broken, or because of wear allows excessive vertical movement of either rail when all bolts are tight, it shall be replaced.
(c) If a joint bar is cracked or broken between the middle two bolt holes it shall be replaced.
(d) Each rail shall be bolted with at least two bolts at each joint.
(e) Each joint bar shall be held in position by track bolts tightened to allow the joint bar to firmly support the abutting rail ends and to allow longitudinal movement of the rail in the joint to accommodate expansion and contraction due to temperature variations. When no-slip, joint-to-rail contact exists by design, the requirements of this section do not apply. Those locations, when over 400 feet long, are considered to be continuous welded rail track and shall meet all the requirements for continuous welded rail track prescribed in this subpart.
(f) No rail shall have a bolt hole which is torch cut or burned.
(g) No joint bar shall be reconfigured by torch cutting.

§ 213.352 -- Torch cut rail.

(a) Except as a temporary repair in emergency situations no rail having a torch cut end shall be used. When a rail end with a torch cut is used in emergency situations, train speed over that rail shall not exceed the maximum allowable for Class 2 track. All torch cut rail ends in Class 6 shall be removed within six months of September 21, 1998.
(b) Following the expiration of the time limits specified in paragraph (a) of this section, any torch cut rail end not removed shall be removed within 30 days of discovery.
Train speed over that rail shall not exceed the maximum allowable for Class 2 track until removed.

§ 213.353 — Turnouts, crossovers and lift rail assemblies or other transition devices on moveable bridges.

(a) In turnouts and track crossings, the fastenings must be intact and maintained so as to keep the components securely in place. Also, each switch, frog, and guard rail shall be kept free of obstructions that may interfere with the passage of wheels. Use of rigid rail crossings at grade is limited per §213.347

(b) Track shall be equipped with rail anchoring through and on each side of track crossings and turnouts, to restrain rail movement affecting the position of switch points and frogs. Elastic fasteners designed to restrict longitudinal rail movement are considered rail anchoring.

(c) Each flangeway at turnouts and track crossings shall be at least 1 1/2 inches wide.

(d) For all turnouts and crossovers, and lift rail assemblies or other transition devices on moveable bridges, the track owner shall prepare an inspection and maintenance Guidebook for use by railroad employees which shall be submitted to the Federal Railroad Administration. The Guidebook shall contain at a minimum-

1. Inspection frequency and methodology including limiting measurement values for all components subject to wear or requiring adjustment.
2. Maintenance techniques.

(e) Each hand operated switch shall be equipped with a redundant operating mechanism for maintaining the security of switch point position.

§ 213.355 — Frog guard rails and guard faces; gage.

The guard check and guard face gages in frogs shall be within the limits prescribed in the following table-

<table>
<thead>
<tr>
<th>Class of track</th>
<th>Guard check gage—The Distance between the gage line of a frog to the guard line of its guard rail or guarding face measured across the track at right angles to the gage line</th>
<th>Guard face gage—The distance between guard lines fn1 measured across the track at right angles to the gage line fn2 may not be less than -</th>
</tr>
</thead>
</table>
| Class 6 track | 4' 6 1/2 "                                                                                     | 4' 5"
| Class 7 track | 4' 6 1/2 "                                                                                     | 4' 5"
| Class 8 track | 4' 6 1/2 "                                                                                     | 4' 5"
| Class 9 track | 4' 6 1/2 "                                                                                     | 4' 5"

fn1 A line along that side of the flangeway which is nearer to the center of the track and at the same elevation as the gage line.
fn2 A line 5/8 inch below the top of the center line of the head of the running rail, or corresponding location of the tread portion of the track structure.
§ 213.357 -- Derails.
(a) Each track, other than a main track, which connects with a Class 7, 8 or 9 main track shall be equipped with a functioning derail of the correct size and type, unless railroad equipment on the track, because of grade characteristics cannot move to foul the main track.
(b) For the purposes of this section, a derail is a device which will physically stop or divert movement of railroad rolling stock or other railroad on-track equipment past the location of the device.
(c) Each derail shall be clearly visible. When in a locked position, a derail shall be free of any lost motion which would prevent it from performing its intended function.
(d) Each derail shall be maintained to function as intended.
(e) Each derail shall be properly installed for the rail to which it is applied.
(f) If a track protected by a derail is occupied by standing railroad rolling stock, the derail shall be in derailing position.
(g) Each derail on a track which is connected to a Class 7, 8 or 9 main track shall be interconnected with the signal system.

§ 213.359 -- Track stiffness.
(a) Track shall have a sufficient vertical strength to withstand the maximum vehicle loads generated at maximum permissible train speeds, cant deficiencies and surface defects. For purposes of this section, vertical track strength is defined as the track capacity to constrain vertical deformations so that the track shall return following maximum load to a configuration in compliance with the vehicle/track interaction safety limits and geometry requirements of this subpart.
(b) Track shall have sufficient lateral strength to withstand the maximum thermal and vehicle loads generated at maximum permissible train speeds, cant deficiencies and lateral alinement defects. For purposes of this section lateral track strength is defined as the track capacity to constrain lateral deformations so that track shall return following maximum load to a configuration in compliance with the vehicle/track interaction safety limits and geometry requirements of this subpart.

§ 213.361 -- Right of way.
The track owner in Class 8 and 9 shall submit a barrier plan, termed a "right-of-way plan," to the Federal Railroad Administration for approval. At a minimum, the plan will contain provisions in areas of demonstrated need for the prevention of-
(a) Vandalism;
(b) Launching of objects from overhead bridges or structures into the path of trains; and
(c) Intrusion of vehicles from adjacent rights of way.

§ 213.365 -- Visual inspections.
(a) All track shall be visually inspected in accordance with the schedule prescribed in paragraph (c) of this section by a person designated under § 213.305.
(b) Each inspection shall be made on foot or by riding over the track in a vehicle at a speed that allows the person making the inspection to visually inspect the track structure for compliance with this part. However, mechanical, electrical, and other track inspection
devices may be used to supplement visual inspection. If a vehicle is used for visual
inspection, the speed of the vehicle may not be more than 5 miles per hour when passing
over track crossings and turnouts, otherwise, the inspection vehicle speed shall be at the
sole discretion of the inspector, based on track conditions and inspection requirements.
When riding over the track in a vehicle, the inspection will be subject to the following
conditions-

(1) One inspector in a vehicle may inspect up to two tracks at one time provided
that the inspector's visibility remains unobstructed by any cause and that the second track
is not centered more than 30 feet from the track upon which the inspector is riding;

(2) Two inspectors in one vehicle may inspect up to four tracks at a time provided
that the inspector's visibility remains unobstructed by any cause and that each track being
inspected is centered within 39 feet from the track upon which the inspectors are riding;

(3) Each main track is actually traversed by the vehicle or inspected on foot at
least once every two weeks, and each siding is actually traversed by the vehicle or
inspected on foot at least once every month. On high density commuter railroad lines
where track time does not permit an on track vehicle inspection, and where track centers
are 15 foot or less, the requirements of this paragraph (b)(3) will not apply; and

(4) Track inspection records shall indicate which track(s) are traversed by the
vehicle or inspected on foot as outlined in paragraph (b)(3) of this section.

(c) Each track inspection shall be made in accordance with the following schedule-

<table>
<thead>
<tr>
<th>Class of track</th>
<th>Required frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>6, 7, 8</td>
<td>Twice weekly with at least 2 calendar-day's interval between inspections.</td>
</tr>
<tr>
<td>9</td>
<td>Three times per week.</td>
</tr>
</tbody>
</table>

(d) If the person making the inspection finds a deviation from the requirements of
this part, the person shall immediately initiate remedial action.

(e) Each switch, turnout, crossover, and lift rail assemblies on moveable bridges
shall be inspected on foot at least weekly. The inspection shall be accomplished in
accordance with the Guidebook required under § 213.353.

(f) In track Classes 8 and 9, if no train traffic operates for a period of eight hours, a
train shall be operated at a speed not to exceed 100 miles per hour over the track before
the resumption of operations at the maximum authorized speed.

§ 213.367 -- Special inspections.

In the event of fire, flood, severe storm, temperature extremes or other occurrence
which might have damaged track structure, a special inspection shall be made of the track
involved as soon as possible after the occurrence and, if possible, before the operation of
any train over that track.

§ 213.369 -- Inspection records.

(a) Each owner of track to which this part applies shall keep a record of each
inspection required to be performed on that track under this subpart.

(b) Except as provided in paragraph (e) of this section, each record of an inspection
under § 213.365 shall be prepared on the day the inspection is made and signed by the
person making the inspection. Records shall specify the track inspected, date of
inspection, location and nature of any deviation from the requirements of this part, and
the remedial action taken by the person making the inspection. The owner shall designate
the location(s) where each original record shall be maintained for at least one year after
the inspection covered by the record. The owner shall also designate one location, within
100 miles of each state in which they conduct operations, where copies of record which
apply to those operations are either maintained or can be viewed following 10 days notice
by the Federal Railroad Administration.
(c) Rail inspection records shall specify the date of inspection, the location and
nature of any internal defects found, the remedial action taken and the date thereof, and
the location of any intervals of track not tested per § 213.339(d). The owner shall retain a
rail inspection record for at least two years after the inspection and for one year after
remedial action is taken.
(d) Each owner required to keep inspection records under this section shall make
those records available for inspection and copying by the Federal Railroad Administrator.
(e) For purposes of compliance with the requirements of this section, an owner of
track may maintain and transfer records through electronic transmission, storage, and
retrieval provided that-
(1) The electronic system be designed such that the integrity of each record
maintained through appropriate levels of security such as recognition of an electronic
signature, or other means, which uniquely identify the initiating person as the author of
that record. No two persons shall have the same electronic identity;
(2) The electronic storage of each record shall be initiated by the person making
the inspection within 24 hours following the completion of that inspection;
(3) The electronic system shall ensure that each record cannot be modified in any
way, or replaced, once the record is transmitted and stored;
(4) Any amendment to a record shall be electronically stored apart from the
record which it amends. Each amendment to a record shall be uniquely identified as to
the person making the amendment;
(5) The electronic system shall provide for the maintenance of inspection records
as originally submitted without corruption or loss of data; and
(6) Paper copies of electronic records and amendments to those records, that may
be necessary to document compliance with this part, shall be made available for
inspection and copying by the FRA and track inspectors responsible under § 213.305.
Such paper copies shall be made available to the track inspectors and at the locations
specified in paragraph (b) of this section.
(7) Track inspection records shall be kept available to persons who performed the
inspection and to persons performing subsequent inspections.
(f) Each vehicle/track interaction safety record required under § 213.333 (g), and
(m) shall be made available for inspection and copying by the FRA at the locations
specified in paragraph (b) of this section.

Appendix A- Maximum Allowable Curving Speeds
Appendix B-Penalty Schedule
Appendix C- Agency Policy on Safety of Railroad Bridges
ROADWAY WORKER PROTECTION

Part 214 Subpart C--Roadway Worker Protection

§ 214.301-- PURPOSE AND SCOPE

(a) To prevent accidents and casualties caused by moving railroad cars, locomotives or on-track equipment striking roadway workers.

(b) Prescribes minimum safety standards for roadway workers.

(c) This subsection prescribes safety standards for roadway maintenance machines as they apply to the safety of roadway workers. This subpart does not otherwise affect movements of roadway maintenance machines that are conducted under the authority of train dispatcher, control operator, or railroad operating rules.

§ 214.303 -- RAILROAD ON-TRACK SAFETY PROGRAMS, GENERALLY

(a) Each railroad shall adopt and implement a program for on-track safety.

(b) Each railroad program shall include procedures for monitoring the effectiveness and compliance with the program. Such internal procedures will not replace FRA inspection and monitoring.

§ 214.309 -- ON-TRACK SAFETY PROGRAM DOCUMENTS

(a) Rules and operating procedures for track occupancy and protection shall be maintained in one manual.

(b) Manual shall be provided to Roadway Workers in charge of on-track safety and be readily available to all roadway workers.

§ 214.311 -- RESPONSIBILITY OF EMPLOYERS

(a) All employers, including contractors, are responsible to assure that employees are trained and understand on-track safety procedures.

(b) Employers shall guarantee the absolute right of each employee to: 1) challenge on-track safety procedures, and 2) remain clear of track until challenge is resolved.

(c) Employer must develop written procedures for equitably resolving such challenges.

§ 214.313 -- RESPONSIBILITY OF INDIVIDUAL ROADWAY WORKERS

(a) Roadway workers are responsible for following the roadway worker rules.
(b) Roadway workers shall not foul track unless necessary to perform duties.

(c) Roadway workers must ascertain on-track safety is being provided.

(d) Roadway workers may refuse any directive to violate on-track safety rules.

§ 214.315 -- SUPERVISION AND COMMUNICATIONS

(a) Requires job briefings regarding on-track safety procedures.

(b) Roadway worker must acknowledge understanding of job briefing.

(c) Employer shall designate one roadway worker to provide on-track safety for each work group.

(d) Designated roadway worker in charge must notify crew members of on-track safety procedures in effect for each job, at each location, where work is to be performed.

(e) Lone workers are required to receive job briefing with supervisor or other designated employee.

§ 214.317 -- ON-TRACK SAFETY PROCEDURES, GENERALLY

(a) Each employer shall adopt a program that complies with sections 214.319 through 214.335. NOTE: The rule does not recognize restricted speed as a sole means of providing on-track safety.

§ 214.319 -- WORKING LIMITS, GENERALLY

Working limits on controlled track shall conform to provisions of Exclusive Track Occupancy (214.321) or Foul time (214.323). Working limits on non-controlled track shall conform to provisions of Inaccessible Track (214.325).

(a) Only employees qualified under this rule (214.351) shall establish working limits for on-track safety.

(b) Only one roadway worker shall have control over working limits.

(c) All movements within working limits shall be under the control of roadway worker in charge. Such movements shall be at restricted speed unless specifically authorized by roadway worker in charge.

(d) All affected roadway workers shall be notified before working limits are released.
§ 214.321 -- EXCLUSIVE TRACK OCCUPANCY

Working limits established on controlled track through Exclusive Track Occupancy shall:

(a) Be placed under the control of qualified (214.351) roadway worker.

(b) Be transmitted by written or printed document, or by relay in a data transmission, or orally where:

(1) Oral transmission is written as received by roadway worker and repeated for verification;

(2) Roadway worker shall maintain possession of written authority;

(3) Dispatcher or control operator shall make record of all authorities issued.

(c) Working limits established under this provision must be clearly identifiable by one of the following features:

(1) Flagman to hold trains and equipment clear;

(2) Fixed signal displaying "stop";

(3) Station identified in timetable and marked with sign;

(4) Clearly identifiable mile post;

(5) Clearly identifiable physical location prescribed by RR operating rules.

§ 214.323 -- FOUL TIME

Working limits established on controlled track by foul time shall:

(a) Be given orally or in writing only after authority for all train movements has been withheld.

(b) Roadway worker shall repeat information for verification before foul time becomes effective.

(c) Roadway worker must be trained and qualified to provide on-track safety.

(d) Dispatcher or control operator shall not permit movement into protected work limits until roadway worker to whom foul time was issued reports clear.
§ 214.325 -- TRAIN COORDINATION

Working limits established through “Train Coordination” shall comply with the following requirements:

(a) Only one train holds exclusive authority to move within segment(s) of track or tracks.

(b) The roadway worker who establishes working limits through “train coordination” shall communicate with a member of the train crew and shall determine that:

   (1) The train is visible to the roadway worker,
   (2) The train is stopped,
   (3) Further movements of the train will be made only as permitted by the roadway worker in charge of working limits, and
   (4) The train crew shall not give up its exclusive authority to move until working limits have been released to the train crew by the roadway worker in charge.

§ 214.327 -- INACCESSIBLE TRACK

Working limits on non-controlled track shall be established by rendering working limits physically inaccessible to trains. No operable locomotives or on-track equipment shall be located within working limits, unless moving under the direction of roadway worker in charge.

The working limits established as inaccessible track shall be protected by at least one of the following:

(a) Flagman with authority to hold all movement clear.

(b) Switch or derail lined and secured to prevent access.

(c) Remotely controlled switch lined and secured by control operator and verified to roadway worker.

(d) A discontinuity in the rail.

§ 214.329 -- TRAIN APPROACH WARNING PROVIDED BY WATCHMAN/LOOKOUTS

(a) Train approach warning must provide at least 15 seconds warning.

(b) Assigned watchman/lookout shall devote full attention to detecting and communicating approach of trains and shall not be assigned any other duties when so assigned.
(c) Train approach warning shall be distinctive and clearly signify 
approach of trains or equipment.

(d) Every roadway worker protected by watchman/lookout must maintain 
a position which enables worker to receive train approach warning.

(e) Warning must be provided by means which does not require warned 
employee to be looking in a particular direction and must be detectable regardless of 
noise or work distractions.

(f) Watchman/lookouts must be trained, qualified, and designated in writing by 
employer.

(g) Watchman/lookouts shall be provided with necessary equipment for 
performing duties of watchman/lookout.

§ 214.331 -- DEFINITE TRAIN LOCATION

On-track safety may be provided under Definite Train Location procedures only 
in accordance with the following:

(a) Class I railroads may only utilize Definite Train Location procedures 
for establishing on-track safety where such procedures were in use on the effective date 
of the final rule.

(b) Each Class I must include a schedule for phase-out of Definite Train 
Location procedures for on-track safety.

(c) Other than Class I may use Definite Train Location provisions on sub 
divisions where:

(1) Such procedures were in use on the effective date of this rule; or

(2) The number of trains operated on sub-division does not exceed:

   (i) Three during any nine hour period in which roadway 
       workers are on duty; and

   (ii) Four during any 12 hour period in which roadway 
       workers are on duty.

(d) Definite Train Location shall only be used as follows:

(1) Shall only be issued by the one train dispatcher with authority 
   over movements over that section of track.

(2) Definite Train Location list shall list all trains to be operated.
(3) Trains not shown on list may not be operated during time when list is in effect.

(4) Shall not be used for on-track protection within limits of manual interlocking, Traffic Control System, or Manual Block System.

(5) Roadway worker shall not foul track within ten minutes of the earliest time train is to depart last station.

(6) Trains shall not depart location designated on list before time shown therein.

(7) Each roadway worker who uses this provision for establishing on-track safety must be qualified in physical characteristics of the territory.

§ 214.333 -- INFORMATIONAL LINE-UPS OF TRAINS

(a) May be used only on sub-divisions where such procedures were in effect prior to March 14, 1996.

(b) Must include all provisions necessary to protect roadway workers from being struck by moving trains and equipment.

(c) Each railroad must include a schedule for discontinuance of Informational Line-ups by a definite date.

§ 214.335 -- ON-TRACK SAFETY PROCEDURES FOR ROADWAY WORK GROUPS

(a) No roadway work group member shall be required to foul a track unless on-track protection is established by either Working Limits, Train Approach Warning, or Definite Train Location in accordance with these rules.

(b) No roadway worker shall foul a track until informed by roadway worker in charge that on-track safety is provided.

(c) Large scale maintenance or construction work groups shall be provided with Train Approach Warning (214.327) on adjacent tracks not included within working limits.

§ 214.337 -- ON-TRACK SAFETY PROCEDURES FOR LONE WORKERS

(a) A Lone Worker who fouls a track while performing routine inspection or minor correction may use Individual Train Detection only where permitted by this section and the railroad's on-track safety program.
(b) A Lone Worker retains the absolute right to use more protective on track safety procedures and to occupy a place of safety until such other procedures can be established.

(c) Individual Train Detection may only be used:

   (1) By a Lone worker who has been trained, qualified, and designated to do so (214.345);

   (2) While performing routine inspection and minor correction work;

   (3) Outside the limits of a manual interlocking, controlled point, or remotely controlled hump yard facility;

   (4) Where the lone worker is able to visually detect train and move to place of safety not less than 15 seconds before movement's arrival;

   (5) Where no power-operated tools or roadway maintenance machines are within the hearing of Lone Worker; and

   (6) Where the ability to hear or see approaching movements is not impaired by any conditions.

(d) The place of safety may not be on a track unless working limits are established on that track.

(e) A lone worker using Individual Train Detection may not put self in any situation which would interfere with worker's ability to maintain vigilant lookout and detect movements from any direction.

(f) Lone Worker using Individual Train Detection shall complete a written "Statement of On-track Safety" under the requirements of this section.

§214.339-- AUDIBLE WARNING FROM TRAINS

Each railroad shall require that the locomotive whistle be sounded, and the locomotive bell be rung, by trains approaching roadway workers on or about the track. Such audible warning shall not substitute for on-track safety procedures prescribed in this part.

§ 214.341 -- ROADWAY MAINTENANCE MACHINES

(a) Each employer's on-track safety program shall include provisions for:

   (1) Training and qualifications for operators;
(2) Establishment and issuance of safety procedures for general application and specific types of machines;
(3) Communication between operators and other roadway workers;
(4) Equipment spacing;
(5) Spacing between equipment and roadway workers;
(6) Maximum working and traveling speeds under various conditions.

(b) Instruction for the safe operation of each machine shall be provided and maintained with each machine large enough to carry instruction document.

(1) No roadway worker shall operate roadway maintenance machinery without having been trained in accordance with 214.353;
(2) No roadway worker shall operate roadway maintenance machine without having complete knowledge of safety instructions for machine;
(3) No roadway worker shall be assigned to work near roadway maintenance machinery unless informed of, and acknowledge, safety procedures applicable to such duties.

(c) Components of roadway maintenance machinery shall be kept clear of passing trains on adjacent tracks.

§ 214.343 -- TRAINING AND QUALIFICATION, GENERAL

(a) No roadway worker shall accept, or be assigned, roadway worker duties unless trained and able to demonstrate the ability to perform such duties with regard to on-track safety.

(b) All roadway workers shall receive initial or recurrent training annually in on-track safety.

(c) Employees, other than roadway workers, whose duties concern the movement of trains shall be trained to perform their function as it relates to on-track protection rules.

(d) Each employer shall maintain records of roadway worker qualifications in effect and shall be available for inspection by FRA.

§ 214.345 -- TRAINING FOR ALL ROADWAY WORKERS

Roadway worker training shall include:
(a) Recognition and understanding of when and where on-track protection is required.

(b) Functions and responsibilities of persons involved with on-track safety procedures.

(c) Proper compliance with on-track safety instructions.

(d) Signals given by watchmen/lookouts.

(e) Hazards associated with working on or near tracks.

§ 214.347 -- TRAINING AND QUALIFICATION FOR LONE WORKERS

Each Lone Worker shall be trained, qualified and authorized by the railroad.

(a) Training for Lone Workers shall include:

   (1) Detection of approaching trains and clearing to place of safety;

   (2) Determination of distance to assure prescribed warning time;

   (3) Rules and procedures for Individual Train Detection;

   (4) On-track safety procedures for territory where employee is working alone.

(b) Qualification of Lone Worker shall be evidenced by demonstrated proficiency.

§ 214.349 -- TRAINING AND QUALIFICATION OF WATCHMEN/LOOKOUTS

(a) Training and qualifications for Watchmen/Lookouts shall include:

   (1) Detection and recognition of approaching movements;

   (2) Effective warning of roadway workers;

   (3) Determination of distance to assure prescribed warning time;

   (4) Rules and procedures to be used for train approach warning.

(b) Qualification for Watchmen/Lookouts shall be evidenced by demonstrated proficiency.
§ 214.351 -- TRAINING AND QUALIFICATION OF FLAGMEN

(a) Shall include operating rules pertaining to giving stop signal to trains and holding trains clear of work limits.

(b) Qualification for Flagmen shall be evidenced by demonstrated proficiency.

§ 214.353 -- TRAINING AND QUALIFICATION OF ROADWAY WORKERS WHO PROVIDE ON-TRACK SAFETY FOR ROADWAY WORK GROUPS

(a) Training and qualifications for roadway workers responsible for establishing on-track safety protection shall include:

(1) All training required of the roadway workers being supervised and protected;

(2) Operating rules pertaining to work limits;

(3) Rules pertaining to Train Approach Warning;

(4) Physical characteristics for territory.

(b) Qualifications for roadway worker responsible for the safety of roadway work groups shall be evidenced by recorded examination.

§ 214.355 -- TRAINING AND QUALIFICATION IN ON-TRACK SAFETY FOR OPERATORS OF ROADWAY MAINTENANCE MACHINES

(a) Training and Qualifications for roadway worker machine operators shall include:

(1) Procedures to prevent person from being struck by machine;

(2) Procedures to prevent machine from being struck by train or other equipment;

(3) Procedures for stopping machine short of collision;

(4) Safe operating procedures for each machine.

(b) Qualifications for roadway worker machine operators shall be evidenced by demonstrated proficiency.

Title 49 C.F.R. Part 214
HOURS OF SERVICE (OPERATING EMPLOYEES)

When an employee has been continuously on duty for a period of 12 hours, it shall be unlawful for a railroad to require or permit that employee to continue on duty or go on duty when he has not had at least 10 consecutive hours off duty. Also, it is unlawful for a railroad to require or permit an employee to continue on duty or to go on duty when he has not had at least 8 consecutive hours off duty during the preceding 24-hour period.

"Time on Duty" commences when an employee reports to duty, and terminates when he is finally released from duty, and shall include:

(a) Interim periods available for rest at other than a designated terminal. Designated terminal means a home and away-from-home terminal for the assignment of a particular crew;

(b) Interim periods available for less than 4 hours rest at a designated terminal;

(c) Time spent by an employee in deadhead transportation to a duty assignment; provided, however, that time spent by an employee in deadhead transportation from duty assignment to the point of final release shall not be counted as time off duty (nor is it to be counted in computing time on duty);

(d) The time an employee is actually engaged in or connected with the movement of any train; and commingled service. Time on duty shall not include interim periods of 4 or more hours between designated terminals where the employee is prevented from leaving his or her designated terminal by an act of God, track obstruction, casualty, derailment or other major disabling equipment failure, which derailment or disabling equipment failure was the result of a cause not known to the carrier at the time the employee left the designated terminal and which could not have been foreseen and only then at a place where suitable facilities for food and lodging were available.

So long as an employee performs any work which is subject to the Hours of Service Act during a tour of duty, then the entire work during that tour of duty is counted as time on duty.

Crews of wreck or relief trains may work up to 16 hours in any period of 24 consecutive hours when an emergency exists and the work of the crew is related to that emergency. An emergency ceases to exist when the track is cleared and open for traffic.

Shorter hours of service and time on duty for less periods of time than set forth in the statute may be negotiated under collective bargaining.

The Act shall not apply in any case of casualty or unavoidable accident or of an act of God; nor where the delay is the result of a cause not known to the carrier at the time an employee left a terminal, and which could not have been foreseen.

Short-line railroads which employ no more than 15 persons may obtain an
exemption from the Act upon good cause shown. The Secretary must find that the exemption is in the public interest and will not adversely affect safety.

Appendix A- Statement of Agency Policy and Interpretation

49 U.S.C. §§ 21103-21107, 21303-21304
49 C.F.R. §§ 228.1-228.23
HOURS OF SERVICE (DISPATCHERS)

Where two or more shifts are used, 9 hours is the maximum permissible time on duty during any 24-hour period that an operator, train dispatcher or other employee who dispatches, reports, transmits, receives or delivers orders relating to train movement may be permitted or required to remain on duty. Where one shift is employed, the employee may work for 12 hours in any 24-hour period.

In case of an emergency, train operators and dispatchers may be permitted to remain on duty for 4 additional hours in any consecutive 24-hour period not exceeding 3 days in any consecutive 7-day period.

The commingled service provisions are applicable to train dispatchers.

49 U.S.C. § 21105
HOURS OF SERVICE (SIGNALMEN)

It shall be unlawful for any railroad (1) to require or permit a person engaged in installing, repairing or maintaining signal systems, who shall have been continuously on duty for 12 hours, or to continue on duty or to go on duty until he has had at least 10 consecutive hours off duty; or (2) to require or permit the employee to go on duty when he has not had at least 8 consecutive hours off duty during the preceding 24 hours.

If the time on duty is broken or interrupted by any period of time off duty of less than 8 consecutive hours, the employee may be on duty for not more than 12 hours during a 24-hour period, if he has had the required rest before going on duty.

If the employee who is engaged in installing, repairing and maintaining systems in performing other service for the carrier, all such time is counted as time on duty.

"Time on duty" shall commence when an individual reports for duty and terminate when he is finally released from duty, except (1) time spent in travel on returning from a trouble call (whether to the person's residence or to the headquarters) such time shall be considered neither time on duty nor time off duty, but up to 60 minutes of the time on return shall be considered time off duty; (2) if, at the end of the scheduled duty hours, the employee has not completed his trip from the final outlying work site to his headquarters or to his residence, then the time spent in travel outside the scheduled duty hours shall be considered neither time on duty nor time off duty; (3) if an employee is reduced from duty at an outlying work site prior to the end of such scheduled duty hours in order to comply with this law, the period of time required for the trip on the outlying work site to headquarters or to the individual's residence shall be considered neither time on duty nor time off duty; (4) all time spent in transportation on an on-track vehicle shall be considered time off duty; (5) regularly scheduled meal periods and other release periods of 30 minutes or more up to 60 minutes shall be considered time off duty, but shall not break an individual's continuity of service and release periods of more than one hour shall be considered time off duty and shall break an individual's continuity of service.

The employee may be required to remain on duty for a time period not to exceed 4 additional hours in any 24-hour consecutive period whenever an actual emergency exists and work of the employee is related to such emergency. An emergency ceases to exist when the signal systems are restored to service.

49 U.S.C. §§ 21102; 21104-21106; 21303
TESTING AND INSPECTIONS OF POWER BRAKES

Because of the complexity of the power brake regulations, I will first summarize the rule and then reproduce the entire rule from the Code of Federal Regulations.

HIGHLIGHTS of the new rule include:

1. The four existing types of brake inspections have been given new identifications—

   The initial terminal test will now be called a Class I brake test; the former 1,000 mile test is now Class IA; the intermediate terminal test is Class II; and the brake pipe continuity test is now Class III. In addition, there is a new fifth type test required for so called “extended haul trains”.

2. A Class I brake test-initial terminal inspection is required at the following locations:

   (1) The location where the train is originally assembled ("initial terminal");

   (2) A location where the train consist is changed other than by:

      (i) Adding a single car or a solid block of cars;

      (ii) Removing a single car or a solid block of cars;

      (iii) Removing cars determined to be defective under this chapter; or

      (iv) A combination of the changes listed above.

   (3) A location where the train is off air for a period of more than four hours;

   (4) A location where a unit or cycle train has traveled 3,000 miles since its last Class I brake test; and

   (5) A location where the train is received in interchange if the train consist is changed other than by:

      (i) Removing a car or a solid block of cars from the train;

      (ii) Adding a previously tested car or a previously tested solid block of cars to the train;

      (iii) Changing motive power;
(iv) Removing or changing the caboose; or

(v) Any combination of the changes listed in (5) of this section.

(A) If changes other than those contained in (5) are made to the train consist when it is received in interchange and the train will move 20 miles or less, then the railroad may conduct a Class II brake test.

3. Class IA brake tests-1,000-mile inspection requirements:

Except as provided for extended haul trains, each train shall receive a Class IA brake test performed by a qualified person 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. The most restrictive car or block of cars in the train shall determine the location of this test.

4. (a) A Class II-intermediate test shall be conducted at a location, other than the initial terminal of a train, on the following equipment when added to a train:

(1) Each car or solid block of cars that has not previously received a Class I brake test or that has been off air for more than four hours;

(2) Each solid block of cars that is comprised of cars from more than one previous train; and

(3) Each solid block of cars that is comprised of cars from only one previous train but the cars of which have not remained continuously and consecutively coupled together with the train line remaining connected, other than for removing defective equipment, since being removed from its previous train.

5. (a) A Class III brake test-trainline continuity inspection- shall be performed on a train to test the train brake system when the configuration of the train has changed as follows:

(1) Where a locomotive or a caboose is changed;

(2) Where a car or a block of cars is removed from the train with the consist otherwise remaining intact;

(3) At a point other than the initial terminal for the train, where a car or a solid block of cars that is comprised of cars from only one previous train the cars of which have remained continuously and consecutively coupled together with the trainline remaining connected, other than for removing defective equipment, since being removed from its previous
train that has previously received a Class I brake test and that has not been off air for more than four hours is added to a train;

(4) At a point other than the initial terminal for the train, where a car or a solid block of cars that has received a Class I or Class II brake test at that location, prior to being added to the train, and that has not been off air for more than four hours is added to a train; or

(5) Whenever the continuity of the brake pipe is broken or interrupted.

6. Class III brake tests-trainline continuity inspection—is required when the configuration of the train has changed as follows:

(1) Where a locomotive or a caboose is changed;

(2) Where a car or a block of cars is removed from the train with the consist otherwise remaining intact;

(3) At a point other than the initial terminal for the train, where a car or a solid block of cars that is comprised of cars from only one previous train the cars of which have remained continuously and consecutively coupled together with the trainline remaining connected, other than for removing defective equipment, since being removed from its previous train that has previously received a Class I brake test and that has not been off air for more than four hours is added to a train;

(4) At a point other than the initial terminal for the train, where a car or a solid block of cars that has received a Class I or Class II brake test at that location, prior to being added to the train, and that has not been off air for more than four hours is added to a train; or

(5) Whenever the continuity of the brake pipe is broken or interrupted.

7. Tests of extended haul trains:

The 1,000 mile inspection test was not extended to 1,500 miles as proposed by AAR. However, a railroad may designate in writing to the FRA certain trains as “extended haul” trains, in which case any such train will be permitted to move up to 1,500 miles between brake tests and inspections.

(a) A railroad may be permitted to move a train up to, but not exceeding, 1,500 miles between brake tests and inspections if the railroad designates a train as an extended haul train. In order for a railroad to designate a train as an extended haul train, all of the following requirements must be met:

(1) The railroad must designate the train in writing to FRA’s Associate Administrator for Safety. This designation must include the following:
(i) The train identification symbol or identification of the location where extended haul trains will originate and a description of the trains that will be operated as extended haul trains from those locations;

(ii) The origination and destination points for the train;

(iii) The type or types of equipment the train will haul; and

(iv) The locations where all train brake and mechanical inspections and tests will be performed.

(2) A Class I brake test shall be performed at the initial terminal for the train by a qualified mechanical inspector.

(3) A freight car inspection pursuant to part 215 shall be performed at the initial terminal for the train and shall be performed by an inspector designated under §215.11.

(4) All cars having conditions not in compliance with part 215 (freight car standards) at the initial terminal for the train shall be either repaired or removed from the train. Except for a car developing such a condition en route, no car shall be moved of this chapter in the train.

(5) The train shall have no more than one pick-up and one set-out en route, except for the set-out of defective equipment pursuant to the requirements of this chapter.

(i) Cars added to the train en route shall be inspected pursuant to the requirements contained in paragraphs (a)(2) through (a)(5) of this section at the location where they are added to the train.

(ii) Cars set out of the train en route shall be inspected pursuant to the requirements contained in paragraph (a)(6) of this section at the location where they are set out of the train.

(6) At the point of destination, if less than 1,500 miles from the train’s initial terminal, or at the point designated by the railroad pursuant to paragraph (a)(1)(iv) of this section, not to exceed 1,500 miles, an inbound inspection of the train shall be conducted by a qualified mechanical inspector to identify any defective, inoperative, or ineffective brakes or any other condition not in compliance with this part as well as any conditions not in compliance with part 215(freight car regulations) and part 231(safety appliance standards) of this chapter.
(7) The railroad shall maintain a record of all defective, inoperative, or ineffective brakes as well as any conditions not in compliance with part 215 and part 231 of this chapter discovered at anytime during the movement of the train. These records shall be retained for a period of one year and made available to FRA upon request. The records required by this section may be maintained either electronically or in writing.

(8) In order for an extended haul train to proceed beyond 1,500 miles, the following requirements shall be met:

(i) If the train will move 1,000 miles or less from that location before receiving a Class IA brake test or reaching destination, a Class I brake test shall be conducted to ensure 100 percent effective and operative brakes. The inbound inspection required by paragraph (a)(6) of this section may be used to meet this requirement provided it encompasses all the inspection elements contained in the Class I inspections.

(ii) If the train will move greater than 1,000 miles from that location without another brake inspection, the train must be identified as an extended haul train for that movement and shall meet all the requirements contained in paragraphs (a)(1) through (a)(7) of this section. Such trains shall receive a Class I brake test by a qualified mechanical inspector to ensure 100 percent effective and operative brakes, a freight car inspection pursuant to part 215 by an inspector designated under §215.11, and all cars containing non-complying conditions under part 215 shall either be repaired or removed from the train. The inbound inspection required by paragraph (a)(6) of this section may be used to meet these inspection requirements provided it encompasses all the inspection elements contained paragraphs (a)(2) through (a)(4) of this section.

(9) FRA inspectors shall have physical access to visually observe all brake and freight car inspections and tests required by this section.

(b) Failure to comply with any of the requirements contained in paragraph (a) of this section will be considered an improper movement of a designated priority train for which appropriate civil penalties may be assessed as outlined in Appendix A to this part. Furthermore, FRA’s Associate Administrator for Safety may revoke a railroad’s ability to designate any or all trains as extended haul trains for repeated or willful noncompliance with any of the requirements contained in this section. Such a determination will be made in writing and will state the basis for such action.
8. When performing the initial terminal test (i.e., Class I), both sides of the car must be observed during the inspection process. Both sides of the equipment do not need to be inspected at the same time the brakes are applied, so long as proper inspection of the brake components was conducted on both sides sometime during the inspection process. Piston travel on each car must be inspected while the brakes are applied.

9. Cars that have been previously tested must be retested if the equipment is removed from a source of compressed air for longer than 4 hours.

10. In performing a brake test to determine if the brakes apply, any obvious defect may be corrected and the brakes retested. If there is a retest, the brakes must remain applied for at least 3 minutes.

11. A defective car may be moved to the nearest repair point where necessary repairs can be performed. At locations where a railroad uses repair trucks in the same manner as a fixed facility, this may be considered a location where necessary repairs can be made. The FRA will determine on a case by case basis what constitutes the nearest location where repairs can be made.

12. The railroads will be permitted to use an automated tracking system in lieu of required tagging of defective equipment, if the railroad’s system is first approved by FRA.

13. The final rule retained existing requirements that a train have 100% operative brakes when departing an initial terminal. (This does not apply to transfer trains, unless such train originates at a location where repairs can be made). The only exception is for movement of defective cars for repair, but in such case there is an absolute prohibition on moving a train with more than 15% of the cars with brakes cut out, or have inoperative brakes.

14. The new rule does not mandate that dynamic brakes be placed on locomotives. However, where they exist, the locomotive engineer must be notified in writing as to the condition of the dynamic brakes on the controlling locomotive. An inoperative dynamic brake must be repaired within 30 days, at the locomotive’s next periodic inspection, whichever occurs first. When operating a locomotive with an inoperative dynamic brake, such locomotive must have the capability to control the dynamic brakes on trailing units. Also, the locomotive must have the capability to display to the engineer the deceleration rate of the train or the total train dynamic brake retarding force. The dynamic brake requirements must be incorporated into the engineer certification training program.

15. Railroads are required to include in their operating rules a requirement that a train must be immediately stopped if it exceeds maximum authorized speed more than 5 mph when descending a grade of 1% or greater.

16. The new regulations contain detailed training requirements for each person who will be required to perform any of the brakes tests and inspections. The training must provide the employee with the necessary skills and knowledge necessary to perform any
required tasks. Refresher training is required every 3 years. The requirements of the FRA regulations must be spelled out so that the employees can distinguish federal requirements from individual railroad rules. Detailed records must be maintained by the railroads on the training which is provided. Prior training and testing received by an employee may be taken into consideration in determining whether an employee is qualified. Any previous training must be clearly documented, or it cannot be considered. Because some of the rules are new, all employees will need some additional training. The railroads are given 3 years to develop and complete the required training.

17. The use of chemicals in a train air brake system which are known to degrade or harm brake system components, such as alcohol, are prohibited. Yard air sources must be inspected at least twice annually and that two of the inspections be no less than 5 months apart.

18. Regarding single car and repair track tests, the FRA set out the requirements for when and how these tests are to be performed. Where fully equipped mobile repair trucks perform the same type of repairs that were previously performed in the shop or repair tracks, such will be considered shop or repair tracks. However, repair or shop tracks must be at locations that have fixed repair facilities and where all types of repairs are performed on a regular basis. In such case, this would require the car to have its brakes inspected and the car is required to receive a repair track air brake test. The final rule does not increase the frequency at which single car or repair track air brake tests are currently to be performed. A repair track test is required on cars that have inoperative or cut-out brakes when removed from a train, not when just minor repairs are made to the brake system. Cars are permitted to be moved from a location where necessary repairs can be made to a location where single car or repair track repairs are conducted. When being moved to such a location, the cars must be tagged.

19. The FRA will continue to permit roll-by inspections of the release of brakes on trains, and the train speed cannot exceed 10 mph.

20. If a railroad’s collective bargaining agreement provides that carmen alone are to perform the initial terminal test and inspection, carmen will be considered the only qualified employee to perform such work. The parties to such an agreement would first have to obtain a decision from the Railroad Adjustment Board interpreting the agreement giving the work exclusively to the carmen.

21. Where a railroad intends to put into service new brake system technologies or major upgrades, the railroad must petition FRA for approval.

22. Piston travel for standard 12-inch stroke brake cylinders continues to be 10 1/2 inches. For standard 8 1/2 inch and 10 inch diameter brake cylinders, piston travel found to be less than 7 inches or more than 9 inches must be adjusted to 7 1/2 inches. For non standard equipment, such as WABCOPAC or NYCOPAC truck mounted brake cylinders, the cylinders must have a badge plate, sticker, or marker indicating both the permissible piston travel range for Class I brake tests and the lengths at which the piston travel renders the brake ineffective. The railroads are given 3 years to implement the marking requirement. The railroads are allowed to use indicators for measuring piston travel and
brake actuation in place of direct observation. All new equipment must be designed so that it will not be necessary for an inspector to place himself between, on, or under the car to observe brake application or release.

23. The new rules address the issue of “bottling air” on unattended equipment by requiring an emergency brake application be initiated on all equipment prior to its being left unattended.

24. The railroads are encouraged, but not required, to equip yard air sources with air dryers.

25. When a train crew takes charge of a train, the weight and length of the train must be provided to the crew.

POWER BRAKE REGULATIONS REPRODUCED FROM THE CODE OF FEDERAL REGULATIONS:

PART 232--BRAKE SYSTEM SAFETY STANDARDS for FREIGHT and OTHER NON-PASSENGER TRAINS and EQUIPMENT; END-of-TRAIN DEVICES

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Subpart A--General

§ 232.1 -- Scope.
(a) This part prescribes Federal safety standards for freight and other non-passenger train brake systems and equipment. Subpart E of this part prescribes Federal safety standards not only for freight and other non-passenger train brake systems and equipment, but also for passenger train brake systems. This part does not restrict a railroad from adopting or enforcing additional or more stringent requirements not inconsistent with this part.
(b) Except as otherwise specifically provided in this paragraph or in this part, railroads to which this part applies shall comply with all the requirements contained in subparts A through C and subpart F of this part beginning on April 1, 2004. Sections 232.1 through 232.13 and 232.17 through 232.21 of this part will become applicable to all railroads to which this part applies beginning on April 1, 2001. Subpart D of this part will become applicable to all railroads to which this part applies beginning on August 1, 2001. Subpart E of this part will become applicable to all trains operating on track which is part of the general railroad system of transportation beginning on April 1, 2001.
(c) A railroad may request earlier application of the requirements contained in subparts A through C and subpart F of this part upon written notification to FRA’s Associate Administrator for Safety. Such a request shall indicate the railroad's readiness and ability to comply with all of the requirements contained in those subparts.
(d) Except for operations identified in § 232.3(c)(1), (c)(4), and (c)(6) through (c)(8), all railroads which are part of the general railroad system of transportation shall operate pursuant to the requirements contained in this part 232 as it existed on April 1, 2001 and
included as Appendix B to this part until they are either required to operate pursuant to
the requirements contained in this part or the requirements contained in part 238 of this
chapter or they elect to comply earlier than otherwise required with the requirements
contained in this part or the requirements contained in part 238 of this chapter.

§ 232.3 -- Applicability.
(a) Except as provided in paragraphs (b) and (c) of this section, this part applies to
all railroads that operate freight or other non-passenger train service on standard gage
track which is part of the general railroad system of transportation. This includes the
operation of circus trains and private cars when hauled on such railroads.
(b) Subpart E of this part, "End-of-Train Devices," applies to all trains operating on
track which is part of the general railroad system of transportation unless specifically
excepted in that subpart.
(c) Except as provided in § 232.1(d) and paragraph (b) of this section, this part does not apply to:
   (1) A railroad that operates only on track inside an installation that is not part of
the general railroad system of transportation.
   (2) Intercity or commuter passenger train operations on standard gage track which
is part of the general railroad system of transportation;
   (3) Commuter or other short-haul rail passenger train operations in a metropolitan
or suburban area (as described by 49 U.S.C. 20102(1)), including public authorities
operating passenger train service;
   (4) Rapid transit operations in an urban area that are not connected with the
general railroad system of transportation;
   (5) Tourist, scenic, historic, or excursion operations, whether on or off the general
railroad system;
   (6) Freight and other non-passenger trains of four-wheel coal cars;
   (7) Freight and other non-passenger trains of eight-wheel standard logging cars if
the height of each car from the top of the rail to the center of the coupling is not more
than 25 inches; or
   (8) A locomotive used in hauling a train referred to in paragraph (c)(7) of this
subsection when the locomotive and cars of the train are used only to transport logs.
(d) The provisions formerly contained in Interstate Commerce Commission Order
13528, of May 30, 1945, as amended, now revoked, are codified in this paragraph. This
part is not applicable to the following equipment:
   (1) Scale test weight cars.
   (2) Locomotive cranes, steam shovels, pile drivers, and machines of similar
construction, and maintenance machines built prior to September 21, 1945.
   (3) Export, industrial, and other cars not owned by a railroad which are not to be
used in service, except for movement as shipments on their own wheels to given
destinations. Such cars shall be properly identified by a card attached to each side of the
car, signed by the shipper, stating that such movement is being made under the authority
of this paragraph.
   (4) Industrial and other than railroad-owned cars which are not to be used in
service except for movement within the limits of a single switching district (i.e., within
the limits of an industrial facility).
   (5) Narrow-gage cars.
(6) Cars used exclusively in switching operations and not used in train movements within the meaning of the Federal safety appliance laws (49 U.S.C. 20301-20306).

§ 232.5 -- Definitions.

For purposes of this part-

AAR means the Association of American Railroads.

Air brake means a combination of devices operated by compressed air, arranged in a system, and controlled manually, electrically, electronically, or pneumatically, by means of which the motion of a railroad car or locomotive is retarded or arrested.

Air Flow Indicator, AFM means a specific air flow indicator required by the air flow method of qualifying train air brakes (AFM). The AFM Air Flow Indicator is a calibrated air flow measuring device which is clearly visible and legible in daylight and darkness from the engineer's normal operating position. The indicator face displays:

1. Markings from 10 cubic feet per minute (CFM) to 80 CFM, in increments of 10 CFM or less; and
2. Numerals indicating 20, 40, 60, and 80 CFM for continuous monitoring of air flow.

Bind means restrict the intended movement of one or more brake system components by reduced clearance, by obstruction, or by increased friction.

Brake, dynamic means a train braking system whereby the kinetic energy of a moving train is used to generate electric current at the locomotive traction motors, which is then dissipated through resistor grids or into the catenary or third rail system.

Brake, effective means a brake that is capable of producing its required designed retarding force on the train. A car's air brake is not considered effective if it is not capable of producing its designed retarding force or if its piston travel exceeds:

1. 10 1/2 inches for cars equipped with nominal 12-inch stroke brake cylinders; or
2. the piston travel limits indicated on the stencil, sticker, or badge plate for that brake cylinder.

Brake, hand means a brake that can be applied and released by hand to prevent or retard the movement of a locomotive.

Brake indicator means a device which indicates the brake application range and indicates whether brakes are applied and released.

Brake, inoperative means a primary brake that, for any reason, no longer applies or releases as intended.

Brake, inoperative dynamic means a dynamic brake that, for any reason, no longer provides its designed retarding force on the train.

Brake, parking means a brake that can be applied by means other than by hand, such as spring, hydraulic, or air pressure when the brake pipe air is depleted, or by an electrical motor.

Brake pipe means the system of piping (including branch pipes, angle cocks, cutout cocks, dirt collectors, hoses, and hose couplings) used for connecting locomotives and all railroad cars for the passage of compressed air.

Brake, primary means those components of the train brake system necessary to stop the train within the signal spacing distance without thermal damage to friction braking surfaces.
Brake, secondary means those components of the train brake system which develop supplemental brake retarding force that is not needed to stop the train within signal spacing distances or to prevent thermal damage to wheels.

Emergency application means an irretrievable brake application resulting in the maximum retarding force available from the train brake system.

End-of-train device, one-way means two pieces of equipment linked by radio that meet the requirements of § 232.403.

End-of-train device, two-way means two pieces of equipment linked by radio that meet the requirements of §§ 232.403 and 232.405.

Foul means any condition which restricts the intended movement of one or more brake system components because the component is snagged, entangled, or twisted.

Freight car means a vehicle designed to carry freight, or railroad personnel, by rail and a vehicle designed for use in a work or wreck train or other non-passenger train.

Initial terminal means the location where a train is originally assembled.

Locomotive means a piece of railroad on-track equipment, other than hi-rail, specialized maintenance, or other similar equipment, which may consist of one or more units operated from a single control stand:

1. With one or more propelling motors designed for moving other railroad equipment;
2. With one or more propelling motors designed to transport freight or passenger traffic or both; or
3. Without propelling motors but with one or more control stands.

Locomotive cab means that portion of the superstructure designed to be occupied by the crew operating the locomotive.

Locomotive, controlling means the locomotive from which the engineer exercises control over the train.

Off air means not connected to a continuous source of compressed air of at least 60 pounds per square inch (psi).

Ordered date or date ordered means the date on which notice to proceed is given by a procuring railroad to a contractor or supplier for new equipment.

Piston travel means the amount of linear movement of the air brake hollow rod (or equivalent) or piston rod when forced outward by movement of the piston in the brake cylinder or actuator and limited by the brake shoes being forced against the wheel or disc.

Pre-revenue service acceptance testing plan means a document, as further specified in § 232.505, prepared by a railroad that explains in detail how pre-revenue service tests of certain equipment demonstrate that the equipment meets Federal safety standards and the railroad's own safety design requirements.

Previously tested equipment means equipment that has received a Class I brake test pursuant to § 232.205 and has not been off air for more than four hours.

Primary responsibility means the task that a person performs at least 50 percent of the time. The totality of the circumstances will be considered on a case-by-case basis in circumstances where an individual does not spend 50 percent of the day engaged in any readily identifiable type of activity.

Qualified mechanical inspector means a qualified person who has received, as a part of the training, qualification, and designation program required under § 232.203, instruction and training that includes "hands-on" experience (under appropriate supervision or apprenticeship) in one or more of the following functions: troubleshooting, inspection, testing, maintenance or repair of the specific train brake components and systems for
which the person is assigned responsibility. This person shall also possess a current understanding of what is required to properly repair and maintain the safety-critical brake components for which the person is assigned responsibility. Further, the qualified mechanical inspector shall be a person whose primary responsibility includes work generally consistent with the functions listed in this definition.

Qualified person means a person who has received, as a part of the training, qualification, and designation program required under § 232.203, instruction and training necessary to perform one or more functions required under this part. The railroad is responsible for determining that the person has the knowledge and skills necessary to perform the required function for which the person is assigned responsibility. The railroad determines the qualifications and competencies for employees designated to perform various functions in the manner set forth in this part. Although the rule uses the term "qualified person" to describe a person responsible for performing various functions required under this part, a person may be deemed qualified to perform some functions but not qualified to perform other functions. For example, although a person may be deemed qualified to perform the Class II/intermediate brake test required by this part, that same person may or may not be deemed qualified to perform the Class I/initial Terminal brake test or authorize the movement of defective equipment under this part. The railroad will determine the required functions for which an individual will be deemed a "qualified person" based upon the instruction and training the individual has received pursuant to § 232.203 concerning a particular function.

Railroad means any form of non-highway ground transportation that runs on rails or electromagnetic guideways, including:

1. Commuter or short-haul railroad passenger service in a metropolitan or suburban area and commuter railroad service that was operated by the Consolidated Rail Corporation on January 1, 1979; and
2. High speed ground transportation systems that connect metropolitan areas, without regard to whether those systems use new technologies not associated with traditional railroads. The term "railroad" is also intended to mean a person that provides transportation by railroad, whether directly or by contracting out operation of the railroad to another person. The term does not include rapid transit operations in an urban area that are not connected to the general railroad system of transportation.

Rebuilt equipment means equipment that has undergone overhaul identified by the railroad as a capital expense under the Surface Transportation Board's accounting standards.

Refresher training means periodic retraining required for employees or contractors to remain qualified to perform specific equipment troubleshooting, inspection, testing, maintenance, or repair functions.

Respond as intended means to produce the result that a device or system is designed to produce.

"Roll-by" inspection means an inspection performed while equipment is moving.

Service application means a brake application that results from one or more service reductions or the equivalent.

Service reduction means a decrease in brake pipe pressure, usually from 5 to 25 psi at a rate sufficiently rapid to move the operating valve to service position, but at a rate not rapid enough to move the operating valve to emergency position.

Solid block of cars means two or more freight cars consecutively coupled together and added to or removed from a train as a single unit.
State inspector means an inspector of a participating State rail safety program under part 212 of this chapter.

Switching service means the classification of freight cars according to commodity or destination; assembling of cars for train movements; changing the position of cars for purposes of loading, unloading, or weighing; placing of locomotives and cars for repair or storage; or moving of rail equipment in connection with work service that does not constitute a train movement.

Tourist, scenic, historic, or excursion operations are railroad operations that carry passengers, often using antiquated equipment, with the conveyance of the passengers to a particular destination not being the principal purpose.

Train means one or more locomotives coupled with one or more freight cars, except during switching service.

Train line means the brake pipe or any non-pneumatic system used to transmit the signal that controls the locomotive and freight car brakes.

Train, unit or train, cycle means a train that, except for the changing of locomotive power and the removal or replacement of defective equipment, remains coupled as a consist and continuously operates from location A to location B and back to location A.

Transfer train means a train that travels between a point of origin and a point of final destination not exceeding 20 miles. Such trains may pick up or deliver freight equipment while en route to destination.

Yard air means a source of compressed air other than from a locomotive.

§ 232.7 -- Waivers.
(a) Any person subject to a requirement of this part may petition the Administrator for a waiver of compliance with such requirement. The filing of such a petition does not affect that person's responsibility for compliance with that requirement while the petition is being considered.
(b) Each petition for waiver must be filed in the manner and contain the information required by part 211 of this chapter.
(c) If the Administrator finds that a waiver of compliance is in the public interest and is consistent with railroad safety, the Administrator may grant the waiver subject to any conditions the Administrator deems necessary. If a waiver is granted, the Administrator publishes a notice in the Federal Register containing the reasons for granting the waiver.

§ 232.9 -- Responsibility for compliance.
(a) A railroad subject to this part shall not use, haul, permit to be used or hauled on its line, offer in interchange, or accept in interchange any train, railroad car, or locomotive with one or more conditions not in compliance with this part; however, a railroad shall not be liable for a civil penalty for such action if such action is in accordance with § 232.15. For purposes of this part, a train, railroad car, or locomotive will be considered in use prior to departure but after it has received, or should have received, the inspection required for movement and is deemed ready for service.
(b) Although many of the requirements of this part are stated in terms of the duties of a railroad, when any person performs any function required by this part, that person (whether or not a railroad) is required to perform that function in accordance with this part.
(c) Any person performing any function or task required by this part shall be deemed to have consented to FRA inspection of the person's operation to the extent necessary to determine whether the function or task is being performed in accordance with the requirements of this part.

§ 232.11 -- Penalties.
(a) Any person (including but not limited to a railroad; any manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least $500, but not more than $11,000 per violation, except that: Penalties may be assessed against individuals only for willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed $22,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. Appendix A to this part contains a schedule of civil penalty amounts used in connection with this rule.
(b) Any person who knowingly and willfully falsifies a record or report required by this part is subject to criminal penalties under 49 U.S.C. 21311.

§ 232.13 -- Preemptive effect.
(a) Under 49 U.S.C. 20106, issuance of the regulations in this part preempts any State law, rule, regulation, order, or standard covering the same subject matter, except for a provision necessary to eliminate or reduce a local safety hazard if that provision is not incompatible with this part and does not impose an undue burden on interstate commerce.
(b) Preemption should also be considered pursuant to the Locomotive Boiler Inspection Act (now codified at 49 U.S.C. 20701-20703), the Safety Appliance Acts (now codified at 49 U.S.C. 20301-20304), and the Commerce Clause based on the relevant case law pertaining to preemption under those provisions.
(c) FRA does not intend by issuance of the regulations in this part to preempt provisions of State criminal law that impose sanctions for reckless conduct that leads to actual loss of life, injury, or damage to property, whether such provisions apply specifically to railroad employees or generally to the public at large.

§ 232.15 -- Movement of defective equipment.
(a) General provision. Except as provided in paragraph (c) of this section, a railroad car or locomotive with one or more conditions not in compliance with this part may be used or hauled without civil penalty liability under this part only if all of the following conditions are met:
   (1) The defective car or locomotive is properly equipped in accordance with the applicable provisions of 49 U.S.C. chapter 203 and the requirements of this part.
   (2) The car or locomotive becomes defective while it is being used by the railroad on its line or becomes defective on the line of a connecting railroad and is properly accepted in interchange for repairs in accordance with paragraph (a)(7) of this section.
   (3) The railroad first discovers the defective condition of the car or locomotive prior to moving it for repairs.
(4) The movement of the defective car or locomotive for repairs is from the location where the car or locomotive is first discovered defective by the railroad.
(5) The defective car or locomotive cannot be repaired at the location where the railroad first discovers it to be defective.
(6) The movement of the car or locomotive is necessary to make repairs to the defective condition.
(7) The location to which the car or locomotive is being taken for repair is the nearest available location where necessary repairs can be performed on the line of the railroad where the car or locomotive was first found to be defective or is the nearest available location where necessary repairs can be performed on the line of a connecting railroad if:

(i) The connecting railroad elects to accept the defective car or locomotive for such repair; and
(ii) The nearest available location where necessary repairs can be performed on the line of the connecting railroad is no farther than the nearest available location where necessary repairs can be performed on the line of the railroad where the car or locomotive was found defective.
(8) The movement of the defective car or locomotive for repairs is not by a train required to receive a Class I brake test at that location pursuant to § 232.205.
(9) The movement of the defective car or locomotive for repairs is not in a train in which less than 85 percent of the cars have operative and effective brakes.
(10) The defective car or locomotive is tagged, or information is recorded, as prescribed in paragraph (b) of this section.
(11) Except for cars or locomotives with brakes cut out en route, the following additional requirements are met:

(i) A qualified person shall determine-
(A) That it is safe to move the car or locomotive; and
(B) The maximum safe speed and other restrictions necessary for safely conducting the movement.
(ii) The person in charge of the train in which the car or locomotive is to be moved shall be notified in writing and inform all other crew members of the presence of the defective car or locomotive and the maximum speed and other restrictions determined under paragraph (a)(11)(i)(B) of this section. A copy of the tag or card described in paragraph (b) of this section may be used to provide the notification required by this paragraph.
(iii) The defective car or locomotive is moved in compliance with the maximum speed and other restrictions determined under paragraph (a)(11)(i)(B) of this section.
(12) The defective car or locomotive is not subject to a Special Notice for Repair under part 216 of this chapter, unless the movement of the defective car is made in accordance with the restrictions contained in the Special Notice.

(b) Tagging of defective equipment.
(1) At the place where the railroad first discovers the defect, a tag or card shall be placed on both sides of the defective equipment or locomotive and in the cab of the locomotive, or an automated tracking system approved for use by FRA shall be provided with the following information about the defective equipment:

(i) The reporting mark and car or locomotive number;
(ii) The name of the inspecting railroad;
(iii) The name and job title of the inspector;
(iv) The inspection location and date;
(v) The nature of each defect;
(vi) A description of any movement restrictions;
(vii) The destination of the equipment where it will be repaired; and
(viii) The signature, or electronic identification, of the person reporting the defective condition.

(2) The tag or card required by paragraph (b)(1) of this section shall remain affixed to the defective equipment until the necessary repairs have been performed.

(3) An electronic or written record or a copy of each tag or card attached to or removed from a car or locomotive shall be retained for 90 days and, upon request, shall be made available within 15 calendar days for inspection by FRA or State inspectors.

(4) Each tag or card removed from a car or locomotive shall contain the date, location, reason for its removal, and the signature of the person who removed it from the piece of equipment.

(5) Any automated tracking system approved by FRA to meet the tagging requirements contained in paragraph (b)(1) of this section shall be capable of being reviewed and monitored by FRA at any time to ensure the integrity of the system. FRA's Associate Administrator for Safety may prohibit or revoke a railroad's authority to utilize an approved automated tracking system in lieu of tagging if FRA finds that the automated tracking system is not properly secure, is inaccessible to FRA or a railroad's employees, or fails to adequately track and monitor the movement of defective equipment. FRA will record such a determination in writing, include a statement of the basis for such action, and provide a copy of the document to the railroad.

(c) Movement for unloading or purging of defective cars. If a defective car is loaded with a hazardous material or contains residue of a hazardous material, the car may not be placed for unloading or purging unless unloading or purging is consistent with determinations made and restrictions imposed under paragraph (a)(11)(i) of this section and the unloading or purging is necessary for the safe repair of the car.

(d) Computation of percent operative power brakes.

(1) The percentage of operative power brakes in a train shall be based on the number of control valves in the train. The percentage shall be determined by dividing the number of control valves that are cut-in by the total number of control valves in the train. A control valve shall not be considered cut-in if the brakes controlled by that valve are inoperative. Both cars and locomotives shall be considered when making this calculation.

(2) The following brake conditions not in compliance with this part are not considered inoperative power brakes for purposes of this section:

   (i) Failure or cutting out of secondary brake systems;
   (ii) Inoperative or otherwise defective handbrakes or parking brakes;
   (iii) Piston travel that is in excess of the Class I brake test limits required in § 232.205 but that does not exceed the outside limits contained on the stencil, sticker, or badge plate required by § 232.103(g) for considering the power brakes to be effective; and
   (iv) Power brakes overdue for inspection, testing, maintenance, or stenciling under this part.

(e) Placement of equipment with inoperative brakes.

(1) A freight car or locomotive with inoperative brakes shall not be placed as the rear car of the train.
(2) No more than two freight cars with either inoperative brakes or not equipped with power brakes shall be consecutively placed in the same train.

(3) Multi-unit articulated equipment shall not be placed in a train if the equipment has more than two consecutive individual control valves cut-out or if the brakes controlled by the valves are inoperative.

(f) Guidelines for determining locations where necessary repairs can be performed. The following guidelines will be considered by FRA when determining whether a location is a location where repairs to a car's brake system or components can be performed and whether a location is the nearest location where the needed repairs can be effectuated.

(1) The following general factors and guidelines will be considered when making determinations as to whether a location is a location where brake repairs can be performed:

(i) The accessibility of the location to persons responsible for making repairs;
(ii) The presence of hazardous conditions that affect the ability to safely make repairs of the type needed at the location;
(iii) The nature of the repair necessary to bring the car into compliance;
(iv) The need for railroads to have in place an effective means to ensure the safe and timely repair of equipment;
(v) The relevant weather conditions at the location that affect accessibility or create hazardous conditions;
(vi) A location need not have the ability to effectuate every type of brake system repair in order to be considered a location where some brake repairs can be performed;
(vii) A location need not be staffed continuously in order to be considered a location where brake repairs can be performed;
(viii) The ability of a railroad to perform repair track brake tests or single car tests at a location shall not be considered; and
(ix) The congestion of work at a location shall not be considered

(2) The general factors and guidelines outlined in paragraph (f)(1) of this section should be applied to the following locations:

(i) A location where a mobile repair truck is used on a regular basis;
(ii) A location where a mobile repair truck originates or is permanently stationed;
(iii) A location at which a railroad performs mechanical repairs other than brake system repairs; and
(iv) A location that has an operative repair track or repair shop;

(3) In determining whether a location is the nearest location where the necessary brake repairs can be made, the distance to the location is a key factor but should not be considered the determining factor. The distance to a location must be considered in conjunction with the factors and guidance outlined in paragraphs (f)(1) and (f)(2) of this section. In addition, the following safety factors must be considered in order to optimize safety:

(i) The safety of the employees responsible for getting the equipment to or from a particular location; and
(ii) The potential safety hazards involved with moving the equipment in the direction of travel necessary to get the equipment to a particular location.
Based on the guidance detailed in paragraph (f) of this section and consistent with other requirements contained in this part, a railroad and the representatives of the railroad's employees may submit, for FRA approval, a joint proposal containing a plan designating locations where brake system repairs will be performed. Approval of such plans shall be made in writing by FRA's Associate Administrator for Safety and shall be subject to any modifications or changes determined by FRA to be necessary to ensure consistency with the requirements and guidance contained in this part.

§ 232.17 -- Special approval procedure.
(a) General. The following procedures govern consideration and action upon requests for special approval of an alternative standard under §§ 232.305 and 232.307; and for special approval of pre-revenue service acceptance testing plans under subpart F of this part.
(b) Petitions for special approval of an alternative standard. Each petition for special approval of an alternative standard shall contain:
   (1) The name, title, address, and telephone number of the primary person to be contacted with regard to review of the petition;
   (2) The alternative proposed, in detail, to be substituted for the particular requirement of this part;
   (3) Appropriate data or analysis, or both, for FRA to consider in determining whether the alternative will provide at least an equivalent level of safety; and
   (4) A statement affirming that the railroad has served a copy of the petition on designated representatives of its employees, together with a list of the names and addresses of the persons served.
(c) Petitions for special approval of pre-revenue service acceptance testing plan. Each petition for special approval of a pre-revenue service acceptance testing plan shall contain:
   (1) The name, title, address, and telephone number of the primary person to be contacted with regard to review of the petition; and
   (2) The elements prescribed in § 232.505.
(d) Service.
   (1) Each petition for special approval under paragraph (b) or (c) of this section shall be submitted in triplicate to the Associate Administrator for Safety, Federal Railroad Administration, 400 7th Street, SW., Washington, DC 20590.
   (2) Service of each petition for special approval of an alternative standard under paragraph (b) of this section shall be made on the following:
      (i) Designated employee representatives responsible for the equipment's operation, inspection, testing, and maintenance under this part;
      (ii) Any organizations or bodies that either issued the standard incorporated in the section(s) of the rule to which the special approval pertains or issued the alternative standard that is proposed in the petition; and
      (iii) Any other person who has filed with FRA a current statement of interest in reviewing special approvals under the particular requirement of this part at least 30 days but not more than 5 years prior to the filing of the petition. If filed, a statement of interest shall be filed with FRA's Associate Administrator for Safety and shall reference the specific section(s) of this part in which the person has an interest.
(e) Federal Register notice. FRA will publish a notice in the Federal Register concerning each petition under paragraph (b) of this section.

(f) Comment. Not later than 30 days from the date of publication of the notice in the Federal Register concerning a petition under paragraph (b) of this section, any person may comment on the petition.

1. A comment shall set forth specifically the basis upon which it is made, and contain a concise statement of the interest of the commenter in the proceeding.

2. The comment shall be submitted in triplicate to the Associate Administrator for Safety, Federal Railroad Administration, 400 7th Street, SW., Washington, DC 20590.

3. The commenter shall certify that a copy of the comment was served on each petitioner.

(g) Disposition of petitions.

1. If FRA finds that the petition complies with the requirements of this section and that the proposed alternative standard or pre-revenue service plan is acceptable and justified, the petition will be granted, normally within 90 days of its receipt. If the petition is neither granted nor denied within 90 days, the petition remains pending for decision. FRA may attach special conditions to the approval of any petition. Following the approval of a petition, FRA may reopen consideration of the petition for cause.

2. If FRA finds that the petition does not comply with the requirements of this section and that the alternative standard or pre-revenue service plan is not acceptable or justified, the petition will be denied, normally within 90 days of its receipt.

3. When FRA grants or denies a petition, or reopens consideration of the petition, written notice is sent to the petitioner and other interested parties.

§ 232.19 -- Availability of records.

Except as otherwise provided, the records and plans required by this part shall be made available to representatives of FRA and States participating under part 212 of this chapter for inspection and copying upon request.

§ 232.21 -- Information Collection.

(a) The information collection requirements of this part were reviewed by the Office of Management and Budget pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.) and are assigned OMB control number 2130-0008.


Subpart B--General Requirements

§ 232.101 -- Scope.

This subpart contains general operating, performance, and design requirements for each railroad that operates freight or other non-passenger trains and for specific equipment used in those operations.

§ 232.103 -- General requirements for all train brake systems.
(a) The primary brake system of a train shall be capable of stopping the train with a
service application from its maximum operating speed within the signal spacing existing
on the track over which the train is operating.
(b) If the integrity of the train line of a train brake system is broken, the train shall be
stopped. If a train line uses other than solely pneumatic technology, the integrity of the
train line shall be monitored by the brake control system.
(c) A train brake system shall respond as intended to signals from the train line.
(d) One hundred percent of the brakes on a train shall be effective and operative
brakes prior to use or departure from any location where a Class I brake test is required to
be performed on the train pursuant to § 232.205.
(e) A train shall not move if less than 85 percent of the cars in that train have
operative and effective brakes.
(f) Each car in a train shall have its air brakes in effective operating condition unless
the car is being moved for repairs in accordance with § 232.15. The air brakes on a car
are not in effective operating condition if its brakes are cut-out or otherwise inoperative
or if the piston travel exceeds:
   (1) 10 1/2 inches for cars equipped with nominal 12-inch stroke brake cylinders;

   or
   (2) The piston travel limits indicated on the stencil, sticker, or badge plate for the
       brake cylinder with which the car is equipped.
(g) Except for cars equipped with nominal 12-inch stroke (8 1/2 and 10-inch
diameters) brake cylinders, all cars shall have a legible decal, stencil, or sticker affixed to
the car or shall be equipped with a badge plate displaying the permissible brake cylinder
piston travel range for the car at Class I brake tests and the length at which the piston
travel renders the brake ineffective, if different from Class I brake test limits. The decal,
stencil, sticker, or badge plate shall be located so that it may be easily read and
understood by a person positioned safely beside the car.
(h) All equipment ordered on or after August 1, 2002, or placed in service for the
first time on or after April 1, 2004, shall have train brake systems designed so that an
inspector can observe from a safe position either the piston travel, an accurate indicator
which shows piston travel, or any other means by which the brake system is actuated.
The design shall not require the inspector to place himself or herself on, under, or
between components of the equipment to observe brake actuation or release.
(i) All trains shall be equipped with an emergency application feature that produces
an irretrievable stop, using a brake rate consistent with prevailing adhesion, train safety,
and brake system thermal capacity. An emergency application shall be available at all
times, and shall be initiated by an unintentional parting of the train line or loss of train
brake communication.
(j) A railroad shall set the maximum main reservoir working pressure.
(k) The maximum brake pipe pressure shall not be greater than 15 psi less than the air
compressor governor starting or loading pressure.
(l) Except as otherwise provided in this part, all equipment used in freight or other non-
passenger trains shall, at a minimum, meet the Association of American Railroads (AAR)
AAR Manual of Standards and Recommended Practices, Section E (April 1, 1999). The
incorporation by reference of this AAR standard was approved by the Director of the
Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain
a copy of the incorporated document from the Association of American Railroads, 50 F
If a train qualified by the Air Flow Method as provided for in subpart C of this part experiences a brake pipe air flow of greater than 60 CFM or brake pipe gradient of greater than 15 psi while en route and the movable pointer does not return to those limits within a reasonable time, the train shall be stopped at the next available location and be inspected for leaks in the brake system.

Securement of unattended equipment. A train's air brake shall not be depended upon to hold equipment standing unattended on a grade (including a locomotive, a car, or a train whether or not locomotive is attached). For purposes of this section, "unattended equipment" means equipment left standing and unmanned in such a manner that the brake system of the equipment cannot be readily controlled by a qualified person. Unattended equipment shall be secured in accordance with the following requirements:

(1) A sufficient number of hand brakes shall be applied to hold the equipment. Railroads shall develop and implement a process or procedure to verify that the applied hand brakes will sufficiently hold the equipment with the air brakes released.

(2) Where possible, an emergency brake application of the air brakes shall be initiated prior to leaving equipment unattended.

(3) The following requirements apply to the use of hand brakes on unattended locomotives:

   (i) All hand brakes shall be fully applied on all locomotives in the lead consist of an unattended train.
   (ii) All hand brakes shall be fully applied on all locomotives in an unattended locomotive consist outside of yard limits.
   (iii) At a minimum, the hand brake shall be fully applied on the lead locomotive in an unattended locomotive consist within yard limits.

(4) A railroad shall adopt and comply with a process or procedures to verify that the applied hand brakes will sufficiently hold an unattended locomotive consist. A railroad shall also adopt and comply with instructions to address throttle position, status of the reverse lever, position of the generator field switch, status of the independent brakes, position of the isolation switch, and position of the automatic brake valve on all unattended locomotives. The procedures and instruction required in this paragraph shall take into account winter weather conditions as they relate to throttle position and reverser handle.

(5) Any hand brakes applied to hold unattended equipment shall not be released until it is known that the air brake system is properly charged.

Air pressure regulating devices shall be adjusted for the following pressures:

<table>
<thead>
<tr>
<th>Locomotives</th>
<th>PSI</th>
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<tbody>
<tr>
<td>(1) Minimum brake pipe air pressure:</td>
<td></td>
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<tr>
<td>Road Service…………………</td>
<td>90</td>
</tr>
<tr>
<td>Switch Service………………</td>
<td>60</td>
</tr>
<tr>
<td>(2) Minimum differential between brake pipe and main reservoir air pressures, with brake valve in running position………</td>
<td>15</td>
</tr>
</tbody>
</table>
§ 232.105 -- General requirements for locomotives.

(a) The air brake equipment on a locomotive shall be in safe and suitable condition for service.

(b) All locomotives ordered on or after August 1, 2002, or placed in service for the first time on or after April 1, 2004, shall be equipped with a hand or parking brake that is:

(1) Capable of application or activation by hand;
(2) Capable of release by hand; and
(3) Capable of holding the unit on a three (3) percent grade.

(c) On locomotives so equipped, the hand or parking brake as well as its parts and connections shall be inspected, and necessary repairs made, as often as service requires but no less frequently than every 368 days. The date of the last inspection shall be either entered on Form FRA F 6180-49A or suitably stenciled or tagged on the locomotive.

(d) The amount of leakage from the equalizing reservoir on locomotives and related piping shall be zero, unless the system is capable of maintaining the set pressure at any service application with the brakes control valve in the freight position. If such leakage is detected en route, the train may be moved only to the nearest forward location where the equalizing-reservoir leakage can be corrected. On locomotives equipped with electronic brakes, if the system logs or displays a fault related to equalizing reservoir leakage, the train may be moved only to the nearest forward location where the necessary repairs can be made.

(e) Use of the feed or regulating valve to control braking is prohibited.

(f) The passenger position on the locomotive brake control stand shall be used only if the trailing equipment is designed for graduated brake release or if equalizing reservoir leakage occurs en route and its use is necessary to safely control the movement of the train until it reaches the next forward location where the reservoir leakage can be corrected.

(g) When taking charge of a locomotive or locomotive consist, an engineer must know that the brakes are in operative condition.

§ 232.107 -- Air source requirements and cold weather operations.

(a) Monitoring plans for yard air sources.
(1) A railroad shall adopt and comply with a written plan to monitor all yard air sources, other than locomotives, to determine that they operate as intended and do not introduce contaminants into the brake system of freight equipment.

(2) This plan shall require the railroad to:
   (i) Inspect each yard air source at least two times per calendar year, no less than five months apart, to determine it operates as intended and does not introduce contaminants into the brake system of the equipment it services.
   (ii) Identify yard air sources found not to be operating as intended or found introducing contaminants into the brake system of the equipment it services.
   (iii) Repair or take other remedial action regarding any yard air source identified under paragraph (a)(2)(ii) of this section.

(3) A railroad shall maintain records of the information and actions required by paragraph (a)(2). These records shall be maintained for a period of at least one year from the date of creation and may be maintained either electronically or in writing.

(b) Condensation and other contaminants shall be blown from the pipe or hose from which compressed air is taken prior to connecting the yard air line or motive power to the train.

(c) No chemicals which are known to degrade or harm brake system components shall be placed in the train air brake system.

(d) Yard air reservoirs shall either be equipped with an operable automatic drain system or be manually drained at least once each day that the devices are used or more often if moisture is detected in the system.

(e) A railroad shall adopt and comply with detailed written operating procedures tailored to the equipment and territory of that railroad to cover safe train operations during cold weather. For purposes of this provision, "cold weather" means when the ambient temperature drops below 10 degrees Fahrenheit (F) (minus 12.2 degrees Celsius).

§ 232.109 -- Dynamic brake requirements.

(a) Except as provided in paragraph (i) of this section, a locomotive engineer shall be informed of the operational status of the dynamic brakes on all locomotive units in the consist at the initial terminal or point of origin for a train and at other locations where a locomotive engineer first begins operation of a train. The information required by this paragraph may be provided to the locomotive engineer by any means determined appropriate by the railroad; however, a written or electronic record of the information shall be maintained in the cab of the controlling locomotive.

(b) Except as provided in paragraph (e) of this section, all inoperative dynamic brakes shall be repaired within 30 calendar days of becoming inoperative or at the locomotive's next periodic inspection pursuant to § 229.23 of this chapter, whichever occurs first.

(c) Except as provided in paragraph (e) of this section, a locomotive discovered with inoperative dynamic brakes shall have a tag bearing the words "inoperative dynamic brake" securely attached and displayed in a conspicuous location in the cab of the locomotive. This tag shall contain the following information:
   (1) The locomotive number;
   (2) The name of the discovering carrier;
(3) The location and date where condition was discovered; and
(4) The signature of the person discovering the condition.

An electronic or written record of repairs made to a locomotive's dynamic brakes shall be retained for 92 days.

A railroad may elect to declare the dynamic brakes on a locomotive deactivated without removing the dynamic brake components from the locomotive, only if all of the following conditions are met:

1. The locomotive is clearly marked with the words "dynamic brake deactivated" in a conspicuous location in the cab of the locomotive; and
2. The railroad has taken appropriate action to ensure that the deactivated locomotive is incapable of utilizing dynamic brake effort to retard or control train speed.

If a locomotive consist is intended to have its dynamic brakes used while in transit, a locomotive with inoperative or deactivated dynamic brakes or a locomotive not equipped with dynamic brakes shall not be placed in the controlling (lead) position of a consist unless the locomotive has the capability of:

1. Controlling the dynamic braking effort in trailing locomotives in the consist that are so equipped; and
2. Displaying to the locomotive engineer the deceleration rate of the train or the total train dynamic brake retarding force.

All locomotives equipped with dynamic brakes and ordered on or after August 1, 2002, or placed in service for the first time on or after April 1, 2004, shall be designed to:

1. Test the electrical integrity of the dynamic brake at rest; and
2. Display the available total train dynamic brake retarding force at various speed increments in the cab of the controlling (lead) locomotive.

All rebuilt locomotives equipped with dynamic brakes and placed in service on or after April 1, 2004, shall be designed to:

1. Test the electrical integrity of the dynamic brake at rest; and
2. Display either the train deceleration rate or the available total train dynamic brake retarding force at various speed increments in the cab of the controlling (lead) locomotive.

The information required by paragraph (a) of this section is not required to be provided to the locomotive engineer if all of the locomotives in the lead consist of a train are equipped in accordance with paragraph (g) of this section.

A railroad operating a train with a brake system that includes dynamic brakes shall adopt and comply with written operating rules governing safe train handling procedures using these dynamic brakes under all operating conditions, which shall be tailored to the specific equipment and territory of the railroad. The railroad's operating rules shall:

1. Ensure that the friction brakes are sufficient by themselves, without the aid of dynamic brakes, to stop the train safely under all operating conditions.
2. Include a "miles-per-hour-overspeed-stop" rule. At a minimum, this rule shall require that any train, when descending a grade of 1 percent or greater, shall be immediately brought to a stop, by an emergency brake application if necessary, when the train's speed exceeds the maximum authorized speed for that train by more than 5 miles per hour. A railroad shall reduce the 5 mile per hour overspeed restriction if validated research indicates the need for such a reduction. A railroad may increase the 5 mile per hour overspeed restriction only with approval of FRA and based upon verifiable data and research.
(k) A railroad operating a train with a brake system that includes dynamic brakes shall adopt and comply with specific knowledge, skill, and ability criteria to ensure that its locomotive engineers are fully trained in the operating rules prescribed by paragraph (j) of this section. The railroad shall incorporate such criteria into its locomotive engineer certification program pursuant to Part 240 of this chapter,

§ 232.111 -- Train handling information.

(a) A railroad shall adopt and comply with written procedures to ensure that a train crew employed by the railroad is given accurate information on the condition of the train brake system and train factors affecting brake system performance and testing when the crew takes over responsibility for the train. The information required by this paragraph may be provided to the locomotive engineer by any means determined appropriate by the railroad; however, a written or electronic record of the information shall be maintained in the cab of the controlling locomotive.

(b) The procedures shall require that each train crew taking charge of a train be informed of:
   (1) The total weight and length of the train, based on the best information available to the railroad;
   (2) Any special weight distribution that would require special train handling procedures;
   (3) The number and location of cars with cut-out or otherwise inoperative brakes and the location where they will be repaired;
   (4) If a Class I or Class IA brake test is required prior to the next crew change point, the location at which that test shall be performed; and
   (5) Any train brake system problems encountered by the previous crew of the train.

Subpart C--Inspection and Testing Requirements

§ 232.201 -- Scope.

This subpart contains the inspection and testing requirements for brake systems used in freight and other non-passenger trains. This subpart also contains general training requirements for railroad and contract personnel used to perform the required inspections and tests.

§ 232.203 -- Training requirements.

(a) Each railroad and each contractor shall adopt and comply with a training, qualification, and designation program for its employees that perform brake system inspections, tests, or maintenance. For purposes of this section, a "contractor" is defined as a person under contract with the railroad or car owner. The records required by this section may be maintained either electronically or in writing.

(b) As part of this program, the railroad or contractor shall:
   (1) Identify the tasks related to the inspection, testing, and maintenance of the brake system required by this part that must be performed by the railroad or contractor and identify the skills and knowledge necessary to perform each task.
   (2) Develop or incorporate a training curriculum that includes both classroom and "hands-on" lessons designed to impart the skills and knowledge identified as necessary to perform each task. The developed or incorporated training curriculum shall specifically
address the Federal regulatory requirements contained in this part that are related to the performance of the tasks identified.

(3) Require all employees to successfully complete a training curriculum that covers the skills and knowledge the employee will need to possess in order to perform the tasks required by this part that the employee will be responsible for performing, including the specific Federal regulatory requirements contained in this part related to the performance of a task for which the employee will be responsible;

(4) Require all employees to pass a written or oral examination covering the skills and knowledge the employee will need to possess in order to perform the tasks required by this part that the employee will be responsible for performing, including the specific Federal regulatory requirements contained in this part related to the performance of a task for which the employee will be responsible for performing;

(5) Require all employees to individually demonstrate "hands-on" capability by successfully applying the skills and knowledge the employee will need to possess in order to perform the tasks required by this part that the employee will be responsible for performing to the satisfaction of the employee's supervisor or designated instructor;

(6) Consider training and testing, including efficiency testing, previously received by an employee in order to meet the requirements contained in paragraphs (b)(3) through (b)(5) of this section; provided, such training and testing can be documented as required in paragraph (e) of this section;

(7) Require supervisors to exercise oversight to ensure that all the identified tasks are performed in accordance with the railroad's written procedures and the specific Federal regulatory requirements contained in this part;

(8) Require periodic refresher training at an interval not to exceed three years that includes classroom and "hands-on" training, as well as testing. Efficiency testing may be used to meet the "hands-on" portion of this requirement; provided, such testing is documented as required in paragraph (e) of this section; and

(9) Add new brake systems to the training, qualification and designation program prior to its introduction to revenue service.

(c) A railroad that operates trains required to be equipped with a two-way end-of-train telemetry device pursuant to Subpart E of this part, and each contractor that maintains such devices shall adopt and comply with a training program which specifically addresses the testing, operation, and maintenance of two-way end-of-train devices for employees who are responsible for the testing, operation, and maintenance of the devices.

(d) A railroad that operates trains under conditions that require the setting of air brake pressure retaining valves shall adopt and comply with a training program which specifically addresses the proper use of retainers for employees who are responsible for using or setting retainers.

(e) A railroad or contractor shall maintain adequate records to demonstrate the current qualification status of all of its personnel assigned to inspect, test, or maintain a train brake system. The records required by this paragraph may be maintained either electronically or in writing and shall be provided to FRA upon request. These records shall include the following information concerning each such employee:

(1) The name of the employee;
(2) The dates that each training course was completed;
(3) The content of each training course successfully completed;
(4) The employee's scores on each test taken to demonstrate proficiency;
(5) A description of the employee's "hands-on" performance applying the skills and knowledge the employee needs to possess in order to perform the tasks required by this part that the employee will be responsible for performing and the basis for finding that the skills and knowledge were successfully demonstrated;

(6) A record that the employee was notified of his or her current qualification status and of any subsequent changes to that status;

(7) The tasks required to be performed under this part which the employee is deemed qualified to perform; and

(8) Identification of the person(s) determining that the employee has successfully completed the training necessary to be considered qualified to perform the tasks identified in paragraph (e)(7) of this section.

(9) The date that the employee's status as qualified to perform the tasks identified in paragraph (e)(7) of this section expires due to the need for refresher training.

(f) A railroad or contractor shall adopt and comply with a plan to periodically assess the effectiveness of its training program. One method of validation and assessment could be through the use of efficiency tests or periodic review of employee performance.

§ 232.205 -- Class I brake test-initial terminal inspection.
(a) Each train and each car in the train shall receive a Class I brake test as described in paragraph (b) of this section by a qualified person, as defined in § 232.5, at the following points:

(1) The location where the train is originally assembled ("initial terminal");

(2) A location where the train consist is changed other than by:
   (i) Adding a single car or a solid block of cars;
   (ii) Removing a single car or a solid block of cars;
   (iii) Removing cars determined to be defective under this chapter; or
   (iv) A combination of the changes listed in paragraphs (a)(2)(i) through (a)(2)(iii) of this section (See §§ 232.209 and 232.211 for requirements related to the pick-up of cars and solid blocks of cars en route.);

(3) A location where the train is off air for a period of more than four hours;

(4) A location where a unit or cycle train has traveled 3,000 miles since its last Class I brake test; and

(5) A location where the train is received in interchange if the train consist is changed other than by:
   (i) Removing a car or a solid block of cars from the train;
   (ii) Adding a previously tested car or a previously tested solid block of cars to the train;
   (iii) Changing motive power;
   (iv) Removing or changing the caboose; or
   (v) Any combination of the changes listed in paragraphs (a)(5) of this section.

   (A) If changes other than those contained in paragraph (a)(5)(i)-(a)(5)(v) of this section are made to the train consist when it is received in interchange and the train will move 20 miles or less, then the railroad may conduct a brake test pursuant to § 232.209 on those cars added to the train.

   (B) Reserved.
(b) A Class I brake test of a train shall consist of the following tasks and requirements:

1. Brake pipe leakage shall not exceed 5 psi per minute or air flow shall not exceed 60 cubic feet per minute (CFM).
   (i) **Leakage Test.** The brake pipe leakage test shall be conducted as follows:

   (A) Charge the air brake system to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at the rear end of train;

   (B) Upon receiving the signal to apply brakes for test, make a 20-psi brake pipe service reduction;

   (C) If the locomotive used to perform the leakage test is equipped with a means for maintaining brake pipe pressure at a constant level during a 20-psi brake pipe service reduction, this feature shall be cut out during the leakage test; and

   (D) With the brake valve lapped and the pressure maintaining feature cut out (if so equipped) and after waiting 45-60 seconds, note the brake pipe leakage as indicated by the brake-pipe gauge in the locomotive, which shall not exceed 5 psi per minute.

   (ii) **Air Flow Method Test.** When a locomotive is equipped with a 26-L brake valve or equivalent pressure maintaining locomotive brake valve, a railroad may use the Air Flow Method Test as an alternate to the brake pipe leakage test. The Air Flow Method (AFM) Test shall be performed as follows:

   (A) Charge the air brake system to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at the rear end of train; and

   (B) Measure air flow as indicated by a calibrated AFM indicator, which shall not exceed 60 cubic feet per minute (CFM).

   (iii) The AFM indicator shall be calibrated for accuracy at periodic intervals not to exceed 92 days. The AFM indicator calibration test orifices shall be calibrated at temperatures of not less than 20 degrees Fahrenheit. AFM indicators shall be accurate to within $\pm 3$ standard cubic feet per minute (CFM).

2. The inspector shall position himself/herself, taking positions on each side of each car sometime during the inspection process, so as to be able to examine and observe the functioning of all moving parts of the brake system on each car in order to make the determinations and inspections required by this section. A "roll-by" inspection of the brake release as provided for in paragraph (b)(8) of this section shall not constitute an inspection of that side of the train for purposes of this requirement;

3. The train brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, angle cocks and cutout cocks shall be properly positioned, air hoses shall be properly coupled and shall not kink, bind, or foul or be in any other condition that restricts air flow. An examination must be made for leaks and necessary repairs made to reduce leakage to the required minimum.
Retaining valves and retaining valve pipes shall be inspected and known to be in proper condition for service;

(4) The brakes on each car and shall apply in response to a 20-psi brake pipe service reduction and shall remain applied until a release of the air brakes has been initiated by the controlling locomotive or yard test device. The brakes shall not be applied or released until the proper signal is given. A car found with brakes that fail to apply or remain applied may be retested and remain in the train if the retest is conducted at the pressure the train will be operated from the controlling locomotive, head end of the consist, or a suitable test device, as described in § 232.217(a) of this part, positioned at one end of the car(s) being retested and the brakes remain applied until a release is initiated after a period which is no less than three minutes. If the retest is performed at the car(s) being retested with a suitable device, the compressed air in the car(s) shall be depleted prior to disconnecting the hoses between the car(s) to perform the retest;

(5) For cars equipped with 8 1/2-inch or 10-inch diameter brake cylinders, piston travel shall be within 7 to 9 inches. If piston travel is found to be less than 7 inches or more than 9 inches, it must be adjusted to nominally 7 1/2 inches. For cars not equipped with 8 1/2-inch or 10-inch diameter brake cylinders, piston travel shall be within the piston travel stenciled or marked on the car or badge plate. Minimum brake cylinder piston travel of truck-mounted brake cylinders must be sufficient to provide proper brake shoe clearance when the brakes are released. Piston travel must be inspected on each freight car while the brakes are applied;

(6) Brake rigging shall be properly secured and shall not bind or foul or otherwise adversely affect the operation of the brake system;

(7) All parts of the brake equipment shall be properly secured. On cars where the bottom rod passes through the truck bolster or is secured with cotter keys equipped with a locking device to prevent their accidental removal, bottom rod safety supports are not required; and

(8) When the release is initiated by the controlling locomotive or yard test device, the brakes on each freight car shall be inspected to verify that it did release; this may be performed by a "roll-by" inspection. If a "roll-by" inspection of the brake release is performed, train speed shall not exceed 10 MPH and the qualified person performing the "roll-by" inspection shall communicate the results of the inspection to the operator of the train. The operator of the train shall note successful completion of the release portion of the inspection on the record required in paragraph (d) of this section.

(c) Where a railroad's collective bargaining agreement provides that a carman is to perform the inspections and tests required by this section, a carman alone will be considered a qualified person. In these circumstances, the railroad shall ensure that the carman is properly trained and designated as a qualified person or qualified mechanical inspector pursuant to the requirements of this part.

(d) A railroad shall notify the locomotive engineer that the Class I brake test was satisfactorily performed and provide the information required in this paragraph to the locomotive engineer or place the information in the cab of the controlling locomotive following the test. The information required by this paragraph may be provided to the locomotive engineer by any means determined appropriate by the railroad; however, a written or electronic record of the information shall be retained in the cab of the controlling locomotive until the train reaches its destination. The written or electronic record shall contain the date, time, number of freight cars inspected, and identify the
qualified person(s) performing the test and the location where the Class I brake test was performed.

(e) Before adjusting piston travel or working on brake rigging, cutout cock in brake pipe branch must be closed and air reservoirs must be voided of all compressed air. When cutout cocks are provided in brake cylinder pipes, these cutout cocks only may be closed and air reservoirs need not be voided of all compressed air.

(f) Except as provided in § 232.209, each car or solid block of cars, as defined in §232.5, that has not received a Class I brake test or that has been off air for more than four hours and that is added to a train shall receive a Class I test when added to a train. A Class III brake test as described in §232.211 shall then be performed on the entire new train.

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

(a) Except as provided in §232.213, 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. The most restrictive car or block of cars in the train shall determine the location of this test.

(b) A Class IA brake test of a train shall consist of the following tasks and requirements:

1. Brake pipe leakage shall not exceed 5 psi per minute or air flow shall not exceed 60 cubic feet per minute (CFM). The brake pipe leakage test or air flow method test shall be conducted pursuant to the requirements contained in §232.205(b)(1);

2. The inspector shall position himself/herself, taking positions on each side of each car sometime during the inspection process, so as to be able to examine and observe the functioning of all moving parts of the brake system on each car in order to make the determinations and inspections required by this section;

3. The air brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at rear end of train;

4. The brakes on each car shall apply in response to a 20-psi brake pipe service reduction and shall remain applied until the release is initiated by the controlling locomotive. A car found with brakes that fail to apply or remain applied may be retested and remain in the train if the retest is conducted as prescribed in §232.205(b)(4); otherwise, the defective equipment may only be moved pursuant to the provisions contained in §232.15, if applicable;

5. Brake rigging shall be properly secured and shall not bind or foul or otherwise adversely affect the operation of the brake system; and

6. All parts of the brake equipment shall be properly secured.

(c) A railroad shall designate the locations where Class IA brake tests will be performed, and the railroad shall furnish to the Federal Railroad Administration upon request a description of each location designated. A railroad shall notify FRA's Associate Administrator for Safety in writing 30 days prior to any change in the locations designated for such tests and inspections.
(1) Failure to perform a Class IA brake test on a train at a location designated pursuant to this paragraph constitutes a failure to perform a proper Class IA brake test if the train is due for such a test at that location.

(2) In the event of an emergency that alters normal train operations, such as a derailment or other unusual circumstance that adversely affects the safe operation of the train, the railroad is not required to provide prior written notification of a change in the location where a Class IA brake test is performed to a location not on the railroad's list of designated locations for performing Class IA brake tests, provided that the railroad notifies FRA's Associate Administrator for Safety and the pertinent FRA Regional Administrator within 24 hours after the designation has been changed and the reason for that change.

§ 232.209 -- Class II brake tests--intermediate inspection.

(a) 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:

(1) Each car or solid block of cars, as defined in § 232.5, that has not previously received a Class I brake test or that has been off air for more than four hours;

(2) Each solid block of cars, as defined in § 232.5, that is comprised of cars from more than one previous train; and

(3) Each solid block of cars that is comprised of cars from only one previous train but the cars of which have not remained continuously and consecutively coupled together with the train line remaining connected, other than for removing defective equipment, since being removed from its previous train.

(b) A Class II brake test shall consist of the following tasks and requirements:

(1) Brake pipe leakage shall not exceed 5 psi per minute or air flow shall not exceed 60 cubic feet per minute (CFM). The brake pipe leakage test or air flow method test shall be conducted on the entire train pursuant to the requirements contained in § 232.205(b)(1);

(2) The air brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at the rear end of train;

(3) The brakes on each car added to the train and on the rear car of the train shall be inspected to ensure that they apply in response to a 20-psi brake pipe service reduction and remain applied until the release is initiated from the controlling locomotive. A car found with brakes that fail to apply or remain applied may be retested and remain in the train if the retest is conducted as prescribed in § 232.205(b)(4); otherwise, the defective equipment may only be moved pursuant to the provisions contained in § 232.15, if applicable;

(4) When the release is initiated, the brakes on each car added to the train and on the rear car of the train shall be inspected to verify that they did release; this may be performed by a "roll-by" inspection. If a "roll-by" inspection of the brake release is performed, train speed shall not exceed 10 MPH, and the qualified person performing the "roll-by" inspection shall communicate the results of the inspection to the operator of the train; and
Before the train proceeds the operator of the train shall know that the brake pipe pressure at the rear of the train is being restored.

(c) As an alternative to the rear car brake application and release portion of the test, the operator of the train shall determine that brake pipe pressure of the train is being reduced, as indicated by a rear car gauge or end-of-train telemetry device, and then that the brake pipe pressure of the train is being restored, as indicated by a rear car gauge or end-of-train telemetry device. (When an end-of-train telemetry device is used to comply with any test requirement in this part, the phrase "brake pipe pressure of the train is being reduced" means a pressure reduction of at least 5 psi, and the phrase "brake pipe pressure of the train is being restored" means a pressure increase of at least 5 psi). If an electronic communication link between a controlling locomotive and a remotely controlled locomotive attached to the rear end of a train is utilized to determine that brake pipe pressure is being restored, the operator of the train shall know that the air brakes function as intended on the remotely controlled locomotive.

(d) Each car or solid block of cars that receives a Class II brake test pursuant to this section when added to the train shall receive a Class I brake test at the next forward location where facilities are available for performing such a test. A Class III brake test as described in § 232.211 shall then be performed on the entire train.

§ 232.211 -- Class III brake tests-trainline continuity inspection.

(a) A Class III brake test shall be performed on a train by a qualified person, as defined in § 232.5, to test the train brake system when the configuration of the train has changed in certain ways. In particular, a Class III brake test shall be performed at the location where any of the following changes in the configuration of the train occur:

(1) Where a locomotive or a caboose is changed;
(2) Where a car or a block of cars is removed from the train with the consist otherwise remaining intact;
(3) At a point other than the initial terminal for the train, where a car or a solid block of cars that is comprised of cars from only one previous train the cars of which have remained continuously and consecutively coupled together with the trainline remaining connected, other than for removing defective equipment, since being removed from its previous train that has previously received a Class I brake test and that has not been off air for more than four hours is added to a train;
(4) At a point other than the initial terminal for the train, where a car or a solid block of cars that has received a Class I or Class II brake test at that location, prior to being added to the train, and that has not been off air for more than four hours is added to a train; or
(5) Whenever the continuity of the brake pipe is broken or interrupted.

(b) A Class III brake test shall consist of the following tasks and requirements:

(1) The train brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, or 60 psi for transfer trains, as indicated at the rear of the train by an accurate gauge or end-of-train device;
(2) The brakes on the rear car of the train shall apply in response to a 20-psi brake pipe service reduction and shall remain applied until the release is initiated by the controlling locomotive;
When the release is initiated, the brakes on the rear car of the train shall be inspected to verify that it did release; and

Before proceeding the operator of the train shall know that the brake pipe pressure at the rear of freight train is being restored.

As an alternative to the rear car brake application and release portion of the test, it shall be determined that the brake pipe pressure of the train is being reduced, as indicated by a rear car gauge or end-of-train telemetry device, and then that the brake pipe pressure of the train is being restored, as indicated by a rear car gauge or end-of-train telemetry device. If an electronic or radio communication link between a controlling locomotive and a remotely controlled locomotive attached to the rear end of a train is utilized to determine that brake pipe pressure is being restored, the operator of the train shall know that the air brakes function as intended on the remotely controlled locomotive.

§ 232.213 -- Extended haul trains.

(a) A railroad may be permitted to move a train up to, but not exceeding, 1,500 miles between brake tests and inspections if the railroad designates a train as an extended haul train. In order for a railroad to designate a train as an extended haul train, all of the following requirements must be met:

1. The railroad must designate the train in writing to FRA's Associate Administrator for Safety. This designation must include the following:
   (i) The train identification symbol or identification of the location where extended haul trains will originate and a description of the trains that will be operated as extended haul trains from those locations;
   (ii) The origination and destination points for the train;
   (iii) The type or types of equipment the train will haul; and
   (iv) The locations where all train brake and mechanical inspections and tests will be performed.

2. A Class I brake test pursuant to § 232.205 shall be performed at the initial terminal for the train by a qualified mechanical inspector as defined in § 232.5.

3. A freight car inspection pursuant to part 215 of this chapter shall be performed at the initial terminal for the train and shall be performed by an inspector designated under § 215.11 of this chapter.

4. All cars having conditions not in compliance with part 215 of this chapter at the initial terminal for the train shall be either repaired or removed from the train. Except for a car developing such a condition en route, no car shall be moved pursuant to the provisions of § 215.9 of this chapter in the train.

5. The train shall have no more than one pick-up and one set-out en route, except for the set-out of defective equipment pursuant to the requirements of this chapter.

   (a) Cars added to the train en route shall be inspected pursuant to the requirements contained in paragraphs (a)(2) through (a)(5) of this section at the location where they are added to the train.

   (ii) Cars set out of the train en route shall be inspected pursuant to the requirements contained in paragraph (a)(6) of this section at the location where they are set out of the train.

6. At the point of destination, if less than 1,500 miles from the train's initial terminal, or at the point designated by the railroad pursuant to paragraph (a)(1)(iv) of this section, not to exceed 1,500 miles, an inbound inspection of the train shall be conducted.
by a qualified mechanical inspector to identify any defective, inoperative, or ineffective brakes or any other condition not in compliance with this part as well as any conditions not in compliance with part 215 and part 231 of this chapter.

7. The railroad shall maintain a record of all defective, inoperative, or ineffective brakes as well as any conditions not in compliance with part 215 and part 231 of this chapter discovered at anytime during the movement of the train. These records shall be retained for a period of one year and made available to FRA upon request. The records required by this section may be maintained either electronically or in writing.

8. In order for an extended haul train to proceed beyond 1,500 miles, the following requirements shall be met:

   (i) If the train will move 1,000 miles or less from that location before receiving a Class IA brake test or reaching destination, a Class I brake test shall be conducted pursuant to § 232.205 to ensure 100 percent effective and operative brakes. The inbound inspection required by paragraph (a)(6) of this section may be used to meet this requirement provided it encompasses all the inspection elements contained in § 232.205.

   (ii) If the train will move greater than 1,000 miles from that location without another brake inspection, the train must be identified as an extended haul train for that movement and shall meet all the requirements contained in paragraphs (a)(1) through (a)(7) of this section. Such trains shall receive a Class I brake test pursuant to § 232.205 by a qualified mechanical inspector to ensure 100 percent effective and operative brakes, a freight car inspection pursuant to part 215 of this chapter by an inspector designated under § 215.11 of this chapter, and all cars containing non-complying conditions under part 215 of this chapter shall either be repaired or removed from the train. The inbound inspection required by paragraph (a)(6) of this section may be used to meet these inspection requirements provided it encompasses all the inspection elements contained paragraphs (a)(2) through (a)(4) of this section.

9. FRA inspectors shall have physical access to visually observe all brake and freight car inspections and tests required by this section.

(b) Failure to comply with any of the requirements contained in paragraph (a) of this section will be considered an improper movement of a designated priority train for which appropriate civil penalties may be assessed as outlined in Appendix A to this part. Furthermore, FRA's Associate Administrator for Safety may revoke a railroad's ability to designate any or all trains as extended haul trains for repeated or willful noncompliance with any of the requirements contained in this section. Such a determination will be made in writing and will state the basis for such action.

§ 232.215 -- Transfer train brake tests.

(a) A transfer train, as defined in § 232.5, shall receive a brake test performed by a qualified person, as defined in § 232.5, that includes the following:

   (1) The air brake hoses shall be coupled between all freight cars;

   (2) After the brake system is charged to not less than 60 psi as indicated by an accurate gauge or end-of-train device at the rear of the train, a 15-psi service brake pipe reduction shall be made; and

   (3) An inspection shall be made to determine that the brakes on each car apply and remain applied until the release is initiated by the controlling locomotive. A car
found with brakes that fail to apply or remain applied may be retested and remain in the
train if the retest is conducted as prescribed in § 232.205(b)(4); otherwise, the defective
equipment may only be moved pursuant to the provisions contained in § 232.15, if
applicable.
(b) Cars added to transfer trains en route shall be inspected pursuant to the
requirements contained in paragraph (a) of this section at the location where the cars are
added to the train.
(c) If a train's movement will exceed 20 miles or is not a transfer train as defined in §
232.5, the train shall receive a Class I brake test in accordance with § 232.205 prior to
departure.

§ 232.217 -- Train brake tests conducted using yard air.
(a) When a train air brake system is tested from a yard air source, an engineer's brake
valve or a suitable test device shall be used to provide any increase or reduction of brake
pipe air pressure at the same, or slower, rate as an engineer's brake valve.
(b) The yard air test device must be connected to the end of the train or block of cars
that will be nearest to the controlling locomotive. However, if the railroad adopts and
complies with written procedures to ensure that potential overcharge conditions to the
train brake system are avoided, the yard air test device may be connected to other than
the end nearest to the controlling locomotive.
(c) Except as provided in this section, when a yard air is used the train air brake
system must be charged and tested as prescribed by § 232.205(b) and when practicable
should be kept charged until road motive power is coupled to train, after which, a Class
III brake test shall be performed as prescribed by § 232.211.
(1) If the cars are off air for more than four hours, these cars shall be retested in
accordance with § 232.205(b) through (e).
(2) At a minimum, yard air pressure shall be 60 psi at the end of the consist or
block of cars opposite from the yard test device and shall be within 15 psi of the regulator
valve setting on yard test device.
(3) If the air pressure of the yard test device is less than the pressure at which the
train will be operated, then a leakage or air flow test shall be conducted at the operating
pressure of the train when the locomotives are attached in accordance with §
232.205(b)(1).
(d) Mechanical yard air test devices and gauges shall be calibrated every 92 days.
Electronic yard test devices and gauges shall be calibrated annually. Mechanical and
electronic yard air test devices and gauges shall be calibrated so that they are accurate to
within #3 psi.
(e) If used to test a train, a yard air test device and any yard air test equipment shall
be accurate and function as intended.

§ 232.219 -- Double heading and helper service.
(a) When more than one locomotive is attached to a train, the engineer of the
controlling locomotive shall operate the brakes. In case it becomes necessary for the
controlling locomotive to give up control of the train short of the destination of the train,
a Class III brake test pursuant to § 232.211 shall be made to ensure that the brakes are
operative from the automatic brake valve of the locomotive taking control of the train.
(b) When one or more helper locomotives are placed in a train, a visual inspection shall be made of each helper locomotive brake system to determine that the brake system operates as intended in response to a 20-psi reduction initiated from the controlling locomotive of the train. A helper locomotive with inoperative or ineffective brakes shall be repaired prior to use or removed from the train.

c) If a helper locomotive utilizes a Helper Link device or a similar technology, the locomotive and device shall be equipped, designed, and maintained as follows:

   (1) The locomotive engineer shall be notified by a distinctive alarm of any loss of communication between the device and the two-way end-of-train device of more than 25 seconds;

   (2) A method to reset the device shall be provided in the cab of the helper locomotive that can be operated from the engineer's usual position during operation of the locomotive;

   (3) The device shall be tested for accuracy and calibrated if necessary according to the manufacturer's specifications and procedures every 365 days. This shall include testing radio frequencies and modulation of the device. A legible record of the date and location of the last test or calibration shall be maintained with the device.

Subpart D--Periodic Maintenance and Testing Requirements

§ 232.301 -- Scope.
This subpart contains the periodic brake system maintenance and testing requirements for equipment used in freight and other non-passenger trains.

§ 232.303 -- General requirements.
(a) Definitions. The following definitions are intended solely for the purpose of identifying what constitutes a shop or repair track under this subpart.

   (1) Shop or repair track means:

   (i) A fixed repair facility or track designated by the railroad as a shop or repair track;

   (ii) A fixed repair facility or track which is regularly and consistently used to perform major repairs;

   (iii) track which is used at a location to regularly and consistently perform both minor and major repairs where the railroad has not designated a certain portion of that trackage as a repair track;

   (iv) A track designated or used by a railroad to regularly and consistently perform minor repairs during the period when major repairs are being conducted on such a track; and

   (v) The facilities and tracks identified in paragraphs (a)(1)(i) through (a)(1)(iv) shall be considered shop or repair tracks regardless of whether a mobile repair vehicle is used to conduct the repairs.

   (2) Major repair means a repair of such a nature that it would normally require greater than four man-hours to accomplish or would involve the use of specialized tools and equipment. Major repairs would include such things as coupler replacement, draft gear repair, and repairs requiring the use of an air jack.

   (3) Minor repair means repairs, other than major repairs, that can be accomplished in a short period of time with limited tools and equipment. Minor repairs...
would include such things as safety appliance straightening, handhold replacement, air hose replacement, lading adjustment, and coupler knuckle or knuckle pin replacement.

(b) A car on a shop or repair track shall be tested to determine that the air brakes apply and remain applied until a release is initiated.

(c) A car on a shop or repair track shall have its piston travel inspected. For cars equipped with 8 1/2-inch or 10-inch diameter brake cylinders, piston travel shall be within 7 to 9 inches. If piston travel is found to be less than 7 inches or more than 9 inches, it must be adjusted to nominally 7 1/2 inches. For cars not equipped with 8 1/2-inch or 10-inch diameter brake cylinders, piston travel shall be within the piston travel stenciled or marked on the car or badge plate.

(d) Before a car is released from a shop or repair track, a qualified person shall ensure:

(1) The brake pipe is securely clamped;
(2) Angle cocks are properly located with suitable clearance and properly positioned to allow maximum air flow;
(3) Valves, reservoirs, and cylinders are tight on supports and the supports are securely attached to the car;
(4) Hand brakes are tested, inspected, and operate as intended; and
(5) Brake indicators, on cars so equipped, are accurate and operate as intended.

(e) If the repair track air brake test or single car test required in §§ 232.305 and 232.307 cannot be conducted at the point where repairs can be made to the car, the car may be moved after the repairs are effectuated to the next forward location where the test can be performed. Inability to perform a repair track air brake test or single car test does not constitute an inability to effectuate the necessary repairs.

(1) If it is necessary to move a car from the location where the repairs are performed in order to perform a repair track air brake test or a single car test required by this part, a tag or card shall be placed on both sides of the equipment, or an automated tracking system approved for use by FRA, with the following information about the equipment:

(i) The reporting mark and car number;
(ii) The name of the inspecting railroad;
(iii) The location where repairs were performed and date;
(iv) Indication whether the car requires a repair track brake test or single car test;
(v) The location where the appropriate test is to be performed; and
(vi) The name, signature, if possible, and job title of the qualified person approving the move.

(2) The tag or card required by paragraph (e)(1) of this section shall remain affixed to the equipment until the necessary test has been performed.

(3) An electronic or written record or copy of each tag or card attached to or removed from a car or locomotive shall be retained for 90 days and, upon request, shall be made available within 15 calendar days for inspection by FRA or State inspectors.

(4) The record or copy of each tag or card removed from a car or locomotive shall contain the date, location, and the signature or identification of the qualified person removing it from the piece of equipment.

(f) The location and date of the last repair track brake test or single car test required by §§ 232.305 and 232.307 of this part shall be clearly stenciled, marked, or labeled in two-inch high letters or numerals on the side of the equipment. Alternatively, the railroad
industry may use an electronic or automated tracking system to track the required information and the performance of the tests required by §§ 232.305 and 232.307 of this part.

(1) Electronic or automated tracking systems used to meet the requirement contained in this paragraph shall be capable of being reviewed and monitored by FRA at any time to ensure the integrity of the system. FRA's Associate Administrator for Safety may prohibit or revoke the railroad industry's authority to utilize an electronic or automated tracking system in lieu of stenciling or marking if FRA finds that the electronic or automated tracking system is not properly secure, is inaccessible to FRA or railroad employees, or fails to adequately track and monitor the equipment. FRA will record such a determination in writing, include a statement of the basis for such action, and will provide a copy of the document to the affected railroads.

(2) [Reserved.]

§ 232.305 -- Repair track air brake tests.

(a) Repair track brake tests shall be performed by a qualified person in accordance with either Section 3.0, "Procedures for Repair Track Test for Air Brake Equipment," of the Association of American Railroads Standard S-486-99, "Code of Air Brake System Tests for Freight Equipment," contained in the AAR Manual of Standards and Recommended Practices, Section E (April 1, 1999) or an alternative procedure approved by FRA pursuant to § 232.17. The incorporation by reference of this AAR standard was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of the incorporated document from the Association of American Railroads, 50 F Street, NW., Washington, DC 20001. You may inspect a copy of the document at the Federal Railroad Administration, Docket Clerk, 1120 Vermont Avenue, NW., Suite 7000, Washington, DC or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

(b) Except as provided in § 232.303(e), a railroad shall perform a repair track brake test on a car when:

   (1) A car has its brakes cut-out or inoperative when removed from a train or when placed on a shop or repair track;
   (2) A car is on a repair or shop track, as defined in § 232.303(a), for any reason and has not received a repair track brake test within the previous 12 month period;
   (3) A car is found with missing or incomplete repair track brake test information;
   (4) One or more of the following conventional air brake equipment items is removed, repaired, or replaced:
      (i) Brake reservoir;
      (ii) Control valve mounting gasket; or
      (iii) Pipe bracket stud.
   (5) A car is found with one or more of the following wheel defects:
      (i) Built-up tread, unless known to be caused by hand brake left applied;
      (ii) Slid flat wheel, unless known to be caused by hand brake left applied;
      (iii) Thermal cracks.

(c) Except as provided in paragraph (d) of this section, each car shall receive a repair track brake test no less than every 5 years.
(d) Each car shall receive a repair track brake test no less than 8 years from the date the car was built or rebuilt.

§ 232.307 -- Single car tests.
(a) Single car tests shall be performed by a qualified person in accordance with either Section 4.0, "Tests-Standard Single Capacity Freight Brake Equipment (Single Car Test)," of the Association of American Railroads Standard S-486-99, "Code of Air Brake System Tests for Freight Equipment," contained in the AAR Manual of Standards and Recommended Practices, Section E (April 1, 1999) or an alternative procedure approved by FRA pursuant to § 232.17. The incorporation by reference of this AAR standard was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of the incorporated document from the Association of American Railroads, 50 F Street, NW., Washington, DC 20001. You may inspect a copy of the document at the Federal Railroad Administration, Docket Clerk, 1120 Vermont Avenue, NW., Suite 7000, Washington, DC or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.
(b) Except as provided in § 232.303(e), a railroad shall perform a single car test on a car when one or more of the following conventional air brake equipment items is removed, repaired or replaced:
   (1) Service portion;
   (2) Emergency portion; or
   (3) Pipe bracket.
(c) A single car test pursuant to paragraph (a) of this section shall be performed on a new or rebuilt car prior to placing or using the car in revenue service.

§ 232.309 -- Repair track air brake test and single car test equipment and devices.
(a) Test equipment and devices used to perform repair track air brake tests or single car tests shall be tested for correct operation at least once each calendar day of use.
(b) Except for single car test devices, mechanical test devices such as pressure gauges, flow meters, orifices, etc. shall be calibrated once every 92 days.
(c) Electronic test devices shall be calibrated at least once every 365 days.
(d) Test equipment and single car test devices placed in service shall be tagged or labeled with the date its next calibration is due.
(e) Each single car test device shall be tested not less frequently than every 92 days after being placed in service and may not continue in service if more than one year has passed since its last 92-day test.
(f) Each single car test device shall be disassembled and cleaned not less frequently than every 365 days after being placed in service.

Subpart E--End-of-Train Devices

§ 232.401 -- Scope.
This subpart contains the requirements related to the performance, operation, and testing of end-of-train devices. Unless expressly excepted in this subpart, the requirements of this subpart apply to all trains operating on track which is part of the general railroad system of transportation.
§ 232.403 -- Design standards for one-way end-of-train devices.

(a) **General.** A one-way end-of-train device shall be comprised of a rear-of-train unit (rear unit) located on the last car of a train and a front-of-train unit (front unit) located in the cab of the locomotive controlling the train.

(b) **Rear unit.** The rear unit shall be capable of determining the brake pipe pressure on the rear car and transmitting that information to the front unit for display to the locomotive engineer. The rear unit shall be-

1. Capable of measuring the brake pipe pressure on the rear car with an accuracy of #3 pounds per square inch (psig) and brake pipe pressure variations of #1 psig;
2. Equipped with a "bleeder valve" that permits the release of any air under pressure from the rear of train unit or the associated air hoses prior to detaching the rear unit from the brake pipe;
3. Designed so that an internal failure will not cause an undesired emergency brake application;
4. Equipped with either an air gauge or a means of visually displaying the rear unit's brake pipe pressure measurement; and
5. Equipped with a pressure relief safety valve to prevent explosion from a high pressure air leak inside the rear unit.

(c) **Reporting rate.** Multiple data transmissions from the rear unit shall occur immediately after a variation in the rear car brake pipe pressure of #2 psig and at intervals of not greater than 70 seconds when the variation in the rear car brake pipe pressure over the 70-second interval is less than #2 psig.

(d) **Operating environment.** The rear unit shall be designed to meet the performance requirements of paragraphs (b) and (c) of this section under the following environmental conditions:

1. At temperatures from 40 [degrees] C to 60 [degrees] C;
2. At a relative humidity of 95% noncondensing at 50 [degrees] C;
3. At altitudes of zero to 12,000 feet mean sea level;
4. During vertical and lateral vibrations of 1 to 15 Hz., with 0.5 g. peak to peak, and 15 to 500 Hz., with 5 g. peak to peak;
5. During the longitudinal vibrations of 1 to 15 Hz., with 3 g. peak to peak, and 15 to 500 Hz., with 5 g. peak to peak; and
6. During a shock of 10 g. peak for 0.1 second in any axis.

(e) **Unique code.** Each rear unit shall have a unique and permanent identification code that is transmitted along with the pressure message to the front-of-train unit. A code obtained from the Association of American Railroads, 50 F Street, NW., Washington, DC 20036 shall be deemed to be a unique code for purposes of this section. A unique code also may be obtained from the Office of Safety Assurance and Compliance (RRS-10), Federal Railroad Administration, Washington, DC 20590.

(f) **Front unit.**

1. The front unit shall be designed to receive data messages from the rear unit and shall be capable of displaying the rear car brake pipe pressure in increments not to exceed one pound.
2. The display shall be clearly visible and legible in daylight and darkness from the engineer's normal operating position.
(3) The front device shall have a means for entry of the unique identification code of the rear unit being used. The front unit shall be designed so that it will display a message only from the rear unit with the same code as entered into the front unit.

(4) The front unit shall be designed to meet the requirements of paragraphs (d)(2), (3), (4), and (5) of this section. It shall also be designed to meet the performance requirements in this paragraph under the following environmental conditions:

   (i) At temperatures from 0 [degrees] C to 60 [degrees] C;
   (ii) During a vertical or lateral shock of 2 g. peak for 0.1 second; and
   (iii) During a longitudinal shock of 5 g. peak for 0.1 second.

(g) Radio equipment.

   (1) The radio transmitter in the rear unit and the radio receiver in the front unit shall comply with the applicable regulatory requirements of the Federal Communications Commission (FCC) and use of a transmission format acceptable to the FCC.

   (2) If power is supplied by one or more batteries, the operating life shall be a minimum of 36 hours at 0 [degrees] C.

§ 232.405 -- Design and performance standards for two-way end-of-train devices.

Two-way end-of-train devices shall be designed and perform with the features applicable to one-way end-of-train devices described in § 232.403, except those included in § 232.403(b)(3). In addition, a two-way end-of-train device shall be designed and perform with the following features:

(a) An emergency brake application command from the front unit of the device shall activate the emergency air valve at the rear of the train within one second.

(b) The rear unit of the device shall send an acknowledgment message to the front unit immediately upon receipt of an emergency brake application command. The front unit shall listen for this acknowledgment and repeat the brake application command if the acknowledgment is not correctly received.

(c) The rear unit, on receipt of a properly coded command, shall open a valve in the brake line and hold it open for a minimum of 15 seconds. This opening of the valve shall cause the brake line to vent to the exterior.

(d) The valve opening shall have a minimum diameter of 3/4 inch and the internal diameter of the hose shall be 5/8 inch to effect an emergency brake application.

(e) The front unit shall have a manually operated switch which, when activated, shall initiate an emergency brake transmission command to the rear unit or the locomotive shall be equipped with a manually operated switch on the engineer control stand designed to perform the equivalent function. The switch shall be labeled "Emergency" and shall be protected so that there will exist no possibility of accidental activation.

(f) All locomotives ordered on or after August 1, 2001, or placed in service for the first time on or after August 1, 2003, shall be designed to automatically activate the two-way end-of-train device to effectuate an emergency brake application whenever it becomes necessary for the locomotive engineer to place the train air brakes in emergency.

(g) The availability of the front-to-rear communications link shall be checked automatically at least every 10 minutes.

(h) Means shall be provided to confirm the availability and proper functioning of the emergency valve.
(i) Means shall be provided to arm the front and rear units to ensure the rear unit responds to an emergency command only from a properly associated front unit.

(a) Definitions. The following definitions are intended solely for the purpose of identifying those operations subject to the requirements for the use of two-way end-of-train devices.

(1) **Heavy grade** means:

   (i) For a train operating with 4,000 trailing tons or less, a section of track with an average grade of two percent or greater over a distance of two continuous miles; and

   (ii) For a train operating with greater than 4,000 trailing tons, a section of track with an average grade of one percent or greater over a distance of three continuous miles.

(2) **Train** means one or more locomotives coupled with one or more rail cars, except during switching operations or where the operation is that of classifying cars within a railroad yard for the purpose of making or breaking up trains.

(3) **Local train** means a train assigned to perform switching en route which operates with 4,000 trailing tons or less and travels between a point of origin and a point of final destination, for a distance that is no greater than that which can normally be operated by a single crew in a single tour of duty.

(4) **Work train** means a non-revenue service train of 4,000 trailing tons or less used for the administration and upkeep service of the railroad.

(5) **Trailing tons** means the sum of the gross weights-expressed in tons-of the cars and the locomotives in a train that are not providing propelling power to the train.

(b) **General.** All trains not specifically excepted in paragraph (e) of this section shall be equipped with and shall use either a two-way end-of-train device meeting the design and performance requirements contained in § 232.405 or a device using an alternative technology to perform the same function.

(c) **New devices.** Each newly manufactured end-of-train device purchased by a railroad after January 2, 1998 shall be a two-way end-of-train device meeting the design and performance requirements contained in § 232.405 or a device using an alternative technology to perform the same function.

(d) **Grandfathering.** Each two-way end-of-train device purchased by any person prior to July 1, 1997 shall be deemed to meet the design and performance requirements contained in § 232.405.

(e) **Exceptions.** The following types of trains are excepted from the requirement for the use of a two-way end-of-train device:

   (1) Trains with a locomotive or locomotive consist located at the rear of the train that is capable of making an emergency brake application, through a command effected by telemetry or by a crew member in radio contact with the controlling locomotive;

   (2) Trains operating in the push mode with the ability to effectuate an emergency brake application from the rear of the train;

   (3) Trains with an operational caboose placed at the rear of the train, carrying one or more crew members in radio contact with the controlling locomotive, that is equipped with an emergency brake valve;
Trains operating with a secondary, fully independent braking system capable of safely stopping the train in the event of failure of the primary system;

Trains that do not operate over heavy grades and do not exceed 30 mph;

Local trains, as defined in paragraph (a)(3) of this section, that do not operate over heavy grades;

Work trains, as defined in paragraph (a)(4) of this section, that do not operate over heavy grades;

Trains that operate exclusively on track that is not part of the general railroad system;

Trains that must be divided into two sections in order to traverse a grade (e.g., doubling a hill). This exception applies only to the extent necessary to traverse the grade and only while the train is divided in two for such purpose;

Passenger trains in which all of the cars in the train are equipped with an emergency brake valve readily accessible to a crew member;

Passenger trains that have a car at the rear of the train, readily accessible to one or more crew members in radio contact with the engineer, that is equipped with an emergency brake valve readily accessible to such a crew member; and

Passenger trains that have twenty-four (24) or fewer cars (not including locomotives) in the consist and that are equipped and operated in accordance with the following train-configuration and operating requirements:

(i) If the total number of cars in a passenger train consist is twelve (12) or fewer, a car located no less than halfway through the consist (counting from the first car in the train) must be equipped with an emergency brake valve readily accessible to a crew member;

(ii) If the total number of cars in a passenger train consist is thirteen (13) to twenty-four (24), a car located no less than two-thirds (2/3) of the way through the consist (counting from the first car in the train) must be equipped with an emergency brake valve readily accessible to a crew member;

(iii) Prior to descending a section of track with an average grade of two percent or greater over a distance of two continuous miles, the engineer of the train shall communicate with the conductor, to ensure that a member of the crew with a working two-way radio is stationed in the car with the rearmost readily accessible emergency brake valve on the train when the train begins its descent; and

(iv) While the train is descending a section of track with an average grade of two percent or greater over a distance of two continuous miles, a member of the train crew shall occupy the car that contains the rearmost readily accessible emergency brake valve on the train and be in constant radio communication with the locomotive engineer. The crew member shall remain in this car until the train has completely traversed the heavy grade.

Specific requirements for use. If a train is required to use a two-way end-of-train device:

(1) That device shall be armed and operable from the time the train departs from the point where the device is installed until the train reaches its destination. If a loss of communication occurs at the location where the device is installed, the train may depart the location at restricted speed for a distance of no more than one mile in order to establish communication. When communication is established, the quantitative values of
the head and rear unit shall be compared pursuant to § 232.409(b) and the device tested pursuant to § 232.409(c), unless the test was performed prior to installation.

(2) The rear unit batteries shall be sufficiently charged at the initial terminal or other point where the device is installed and throughout the train's trip to ensure that the end-of-train device will remain operative until the train reaches its destination.

(3) The device shall be activated to effectuate an emergency brake application either by using the manual toggle switch or through automatic activation, whenever it becomes necessary for the locomotive engineer to initiate an emergency application of the air brakes using either the automatic brake valve or the conductor's emergency brake valve.

(g) _En route failure of device on a freight or other non-passenger train._ Except on passenger trains required to be equipped with a two-way end-of-train device (which are provided for in paragraph (h) of this section), en route failures of a two-way end-of-train device shall be handled in accordance with this paragraph. If a two-way end-of-train device or equivalent device fails en route (i.e., is unable to initiate an emergency brake application from the rear of the train due to certain losses of communication (front to rear) or due to other reasons, the speed of the train on which it is installed shall be limited to 30 mph until the ability of the device to initiate an emergency brake application from the rear of the train is restored. This limitation shall apply to a train using a device that uses an alternative technology to serve the purpose of a two-way end-of-train device. With regard to two-way end-of-train devices, a loss of communication between the front and rear units is an en route failure only if the loss of communication is for a period greater than 16 minutes and 30 seconds. Based on the existing design of the devices, the display to an engineer of a message that there is a communication failure indicates that communication has been lost for 16 minutes and 30 seconds or more.

(1) If a two-way end-of-train device fails en route, the train on which it is installed, in addition to observing the 30-mph speed limitation, shall not operate over a section of track with an average grade of two percent or greater for a distance of two continuous miles, unless one of the following alternative measures is provided:

(i) Use of an occupied helper locomotive at the end of the train. This alternative may be used only if the following requirements are met:

(A) The helper locomotive engineer shall initiate and maintain two-way voice radio communication with the engineer on the head end of the train; this contact shall be verified just prior to passing the crest of the grade.

(B) If there is a loss of communication prior to passing the crest of the grade, the helper locomotive engineer and the head-end engineer shall act immediately to stop the train until voice communication is resumed, in accordance with the railroad's operating rules.

(C) If there is a loss of communication once the descent has begun, the helper locomotive engineer and the head-end engineer shall act to stop the train, in accordance with the railroad's operating rules, if the train has reached a predetermined rate of speed that indicates the need for emergency braking.

(D) The brake pipe of the helper locomotive shall be connected and cut into the train line and tested to ensure operation.

(ii) Use of an occupied caboose at the end of the train with a tested, functioning brake valve capable of initiating an emergency brake application from...
the caboose. This alternative may be used only if the train service employee in the
caboose and the engineer on the head end of the train establish and maintain two-
way voice radio communication and respond appropriately to the loss of such
communication in the same manner as prescribed for helper locomotives in
paragraph (g)(1)(i) of this section.

(iii) Use of a radio-controlled locomotive at the rear of the train under
continuous control of the engineer in the head end by means of telemetry, but
only if such radio-controlled locomotive is capable of initiating an emergency
application on command from the lead (controlling) locomotive.

(2) [Reserved.]

(h) En route failure of device on a passenger train.

(1) A passenger train required to be equipped with a two-way end-of-train device
that develops an en route failure of the device (as explained in paragraph (g) of this
section) shall not operate over a section of track with an average grade of two percent or
greater over a distance of two continuous miles until an operable two-way end-of-train
device is installed on the train or an alternative method of initiating an emergency brake
application from the rear of the train is achieved.

(2) Except as provided in paragraph (h)(1) of this section, a passenger train
required to be equipped with a two-way end-of-train device that develops an en route
failure of the device (as explained in paragraph (g) of this section) shall be operated in
accordance with the following:

(i) A member of the train crew shall be immediately positioned in the car
which contains the rearmost readily accessible emergency brake valve on the train
and shall be equipped with an operable two-way radio that communicates with the
locomotive engineer; and

(ii) The locomotive engineer shall periodically make running tests of the
train's air brakes until the failure is corrected; and

(3) Each en route failure shall be corrected at the next location where the
necessary repairs can be conducted or at the next location where a required brake test is
to be performed, whichever is reached first.

§ 232.409 -- Inspection and testing of end-of-train devices.

(a) After each installation of either the front or rear unit of an end-of-train device, or
both, on a train and before the train departs, the railroad shall determine that the
identification code entered into the front unit is identical to the unique identification code
on the rear unit.

(b) After each installation of either the front or rear unit of an end-of-train device, or
both, on a train and before the train departs, the functional capability of the device shall
be determined, after charging the train, by comparing the quantitative value of the air
pressure displayed on the front unit with the quantitative value of the air pressure
displayed on the rear unit or on a properly calibrated air gauge. The end-of-train device
shall not be used if the difference between the two readings exceeds three pounds per
square inch.

(c) A two-way end-of-train device shall be tested at the initial terminal or other point
of installation to ensure that the device is capable of initiating an emergency power brake
application from the rear of the train. If this test is conducted by a person other than a
member of the train crew, the locomotive engineer shall be notified that a successful test
was performed. The notification required by this paragraph may be provided to the locomotive engineer by any means determined appropriate by the railroad; however, a written or electronic record of the notification shall be maintained in the cab of the controlling locomotive and shall include the date and time of the test, the location where the test was performed, and the name of person conducting the test.

(d) The telemetry equipment shall be tested for accuracy and calibrated if necessary according to the manufacturer's specifications and procedures at least every 365 days. This shall include testing radio frequencies and modulation of the device. The date and location of the last calibration or test as well as the name of the person performing the calibration or test shall be legibly displayed on a weather-resistant sticker or other marking device affixed to the outside of both the front unit and the rear unit; however, if the front unit is an integral part of the locomotive or is inaccessible, then the information may be recorded on Form FRA F6180-49A instead, provided the serial number of the unit is recorded.

Subpart F--Introduction of New Brake System Technology

§ 232.501 -- Scope.

This subpart contains general requirements for introducing new brake system technologies. This subpart is intended to facilitate the introduction of new complete brake system technologies or major upgrades to existing systems which the current regulations do not adequately address (i.e., electronic brake systems). This subpart is not intended for use in the introduction of a new brake component or material.

§ 232.503 -- Process to introduce new brake system technology.

(a) Pursuant to the procedures contained in § 232.17, each railroad shall obtain special approval from the FRA Associate Administrator for Safety of a pre-revenue service acceptance testing plan, developed pursuant to § 232.505, for the new brake system technology, prior to implementing the plan.

(b) Each railroad shall complete a pre-revenue service demonstration of the new brake system technology in accordance with the approved plan, shall fulfill all of the other requirements prescribed in § 232.505, and shall obtain special approval from the FRA Associate Administrator for Safety under the procedures of § 232.17 prior to using such brake system technology in revenue service.

§ 232.505 -- Pre-revenue service acceptance testing plan.

(a) General; submission of plan. Except as provided in paragraph (f) of this section, before using a new brake system technology for the first time on its system the operating railroad or railroads shall submit a pre-revenue service acceptance testing plan containing the information required by paragraph (e) of this section and obtain the approval of the FRA Associate Administrator for Safety, under the procedures specified in § 232.17.

(b) Compliance with plan. After receiving FRA approval of the pre-revenue service testing plan and before introducing the new brake system technology into revenue service, the operating railroad or railroads shall:

(1) Adopt and comply with such FRA-approved plan, including fully executing the tests required by the plan;
(2) Report to the FRA Associate Administrator for Safety the results of the pre-revenue service acceptance tests;

(3) Correct any safety deficiencies identified by FRA in the design of the equipment or in the inspection, testing, and maintenance procedures or, if safety deficiencies cannot be corrected by design or procedural changes, agree to comply with any operational limitations that may be imposed by the Associate Administrator for Safety on the revenue service operation of the equipment; and

(4) Obtain FRA approval to place the new brake system technology in revenue service.

(c) Compliance with limitations. The operating railroad shall comply with each operational limitation, if any, imposed by the Associate Administrator for Safety.

(d) Availability of plan. The plan shall be made available to FRA for inspection and copying upon request.

(e) Elements of plan. The plan shall include all of the following elements:

(1) An identification of each waiver, if any, of FRA or other Federal safety regulations required for the tests or for revenue service operation of the equipment.

(2) A clear statement of the test objectives. One of the principal test objectives shall be to demonstrate that the equipment meets the safety design and performance requirements specified in this part when operated in the environment in which it is to be used.

(3) A planned schedule for conducting the tests.

(4) A description of the railroad property or facilities to be used to conduct the tests.

(5) A detailed description of how the tests are to be conducted. This description shall include:

(i) An identification of the equipment to be tested;

(ii) The method by which the equipment is to be tested;

(iii) The criteria to be used to evaluate the equipment's performance; and

(iv) The means by which the test results are to be reported to FRA.

(6) A description of any special instrumentation to be used during the tests.

(7) A description of the information or data to be obtained.

(8) A description of how the information or data obtained is to be analyzed or used.

(9) A description of any criteria to be used as safety limits during the testing.

(10) A description of the criteria to be used to measure or determine the success or failure of the tests. If acceptance is to be based on extrapolation of less than full level testing results, the analysis to be done to justify the validity of the extrapolation shall be described.

(11) A description of any special safety precautions to be observed during the testing.

(12) A written set of standard operating procedures to be used to ensure that the testing is done safely.

(13) Quality control procedures to ensure that the inspection, testing, and maintenance procedures are followed.

(14) Criteria to be used for the revenue service operation of the equipment.

(15) A description of all testing of the equipment that has previously been performed, if any.
(f) **Exception.** For brake system technologies that have previously been used in revenue service in the United States, the railroad shall test the equipment on its system, prior to placing it in revenue service, to ensure the compatibility of the equipment with the operating system (track, signals, etc.) of the railroad. A description of such testing shall be retained by the railroad and made available to FRA for inspection and copying upon request.

Appendix A --Schedule of Penalties
TWO WAY END-OF-TRAIN TELEMETRY DEVICES

In general the regulations require trains exceeding 30 miles per hour which operate on heavy grades to be equipped with such devices. There are a number of exceptions, and the definition of heavy grade encompasses two different sets of conditions as follows:

For a train operating with 4,000 trailing tons or less, a section of track with an average grade of 2% or greater over a distance of 2 continuous miles; and for a train operating with greater than 4,000 trailing tons, a section of track with an average grade of 1% or greater over a distance of 3 continuous miles.

The following types of trains are exempted from the requirement for having a two-way EOT:

1. Trains with a locomotive capable of making an emergency brake application located in the rear third of the train length.

2. Trains operating in the push mode with the ability to make an emergency brake application from the rear.

3. Trains with an operational and occupied caboose equipped with an emergency brake valve.

4. Trains operating with a secondary fully independent braking system capable of stopping the train in the event of failure of the primary system.

5. Trains that do not operate over heavy grades and do not exceed 30 miles per hour.

6. Local trains that do not operate over heavy grades. A local train is defined as one assigned to perform switching en route which operates with 4,000 trailing tons or less and travels a distance that is no greater than that which can normally be operated by a single crew in a single tour of duty.

7. Work trains that do not operate over heavy grades. A work train is defined as a non-revenue service train of 4,000 trailing tons or less used for the administration and the upkeep service of the railroad.

8. Trains that are not part of the general railroad system.

9. Passenger trains equipped with emergency brake valves on all cars and which are readily accessible to a crew member.

10. Passenger trains that operate with a car placed at the rear of the train that is

26 / The full text of these rules are contained in the power brake regulations, reprinted in this booklet.
equipped with an emergency brake valve readily accessible to a crew member in radio communication with the engineer.

11. Passenger trains with 24 or fewer cars that do not have a rear car with a readily accessible emergency brake valve and operated in accordance with the following:

   (a) If the total number of cars in the passenger train is 12 or less, a car no less than halfway in the train must be equipped with an emergency brake valve readily assessible to a crew member;

   (b) If the total number of cars are between 13 and 24, and located 2/3 of the way through the train shall be equipped as in (a);

   (c) Before descending an average of 2% grade over a 2 mile distance, the engineer shall communicate with the conductor to ensure that a working two-way radio is located in the car with the rearmost readily accessible emergency brake valve; and

   (d) While the train is descending the 2% grade, a member of the train crew shall occupy the car with the rearmost accessible emergency brake valve.

   (e) Trains that must be divided into two sections in order to traverse a grade. This applies only to the extent necessary to traverse the grade and only while the train is divided.

The two-way EOT rule sets out design and performance standards which must be met, including among other things that the rear unit on a command shall open a valve on the brake line and hold it open for a minimum of 15 seconds; and the front to rear communications link shall be checked automatically at least every 10 minutes.

The FRA has imposed a performance standard which requires that the rear unit batteries shall be sufficiently charged at the initial terminal or other point where the device is installed and throughout the train's trip to ensure that the EOT will remain operative until the train reaches its destination. Therefore, FRA will impose a strict liability standard regarding failures due to insufficiently charged batteries, and it will be a per se violation, if a device fails en route due to insufficiently charged batteries.

The device shall be armed and operable from the time the train departs from the point where the device is installed until the train reaches its destination. If there is a loss of communication at the location where the device is installed, the train may depart the location at restricted speed for a distance of no more than one mile to establish communication.

If the EOT device fails en route, the speed of the train shall be limited to 30 mile per hour. A loss of communication between the front and rear units will be considered an en route failure only if the loss of communication is for a period greater than 16 minutes and 30 seconds. In addition to the 30 miles per hour speed restriction, the train shall not operate over a section of track with an average grade of 2% or higher over a distance of 2
continuous miles unless (1) the train has an occupied helper locomotive in which there is two-way voice radio communication with the engineer on the head end of the train and they have the capability of stopping the train where there is a loss of communication; or (2) there is an occupied caboose at the end of the train with a functional brake valve capable of initiating an emergency brake application from the caboose; or (3) use of a radio-controlled locomotive in the rear third of the train under continuous control of the engineer in the head end.

If a passenger train develops an en route failure of the EOT device, it shall not operate over an area where a two way EOT device is required until an operable one is installed on the train or an alternative method of initiating an emergency brake application from the rear is achieved. In non heavy grade territory the train shall have a train crew member located in the rearmost car with a readily accessible emergency brake valve and shall be equipped with an operable two-way radio; and the engineer shall periodically make running brake tests until the EOT failure is corrected.

Each en route failure shall be corrected at the next location where repairs can be made or at the next location where a required brake test is to be performed, whichever is closer.

Regarding the inspection and testing of EOTs, before the train departs, the identification code of the front and rear unit shall be determined to be identical; the value displayed on the front unit shall be within 3 pounds per square inch of the reading on the rear; the EOT shall be tested at the initial terminal or other point of installation; and the equipment shall be calibrated for accuracy at least every 368 days.

The locomotive engineer shall be notified that a successful test of the device has occurred by any means determined appropriate by the railroad. However, a written or electronic record must be maintained in the cab of the controlling locomotive.

49 C.F.R. §§ 232.401-232.409
ACCIDENT REPORTS ACT AND ACCIDENT/INCIDENT REPORTING REGULATIONS

Monthly Report by Carrier

Each railroad must file with the Secretary of Transportation a monthly report of all collisions, derailments or other accidents or incidents resulting in injury to any person or in damage to equipment or roadbed. The report must state the nature and cause of all such accidents.

It should be pointed out that the requirement for reporting "accidents" is contained in the statute. However, in 1974 the FRA added the word "incident" which also is required to be reported under the regulations. The FRA stated that the term "incidents" is more descriptive of both accidents and occupational illnesses than the word "accident." Train accidents are events, with or without casualties, arising in connection with the operation of railroad on-track equipment where there is a collision, derailment, fire, explosion, or any event which results in more than $6,700 in damages to railroad on-track equipment, signals, track, track structures and roadbed. Train incidents are events arising in connection with the movement of railroad on-track equipment which result in a reportable death, injury or illness, but do not result in damage to railroad, track or roadbed of more than $6,700.

Determination of the Reporting Threshold

In calculating the accident reporting dollar threshold, the FRA will review the Producer Price Index and the National Employment Hours and Earnings figures from the Bureau of Labor Statistics. The components will be Class 1 railroads average hourly earnings as reported to the Department of Labor, and the Producer Price Index will be determined for railroad equipment. Such equipment cost data would be indexed to a base year of 1982.

In calculating the damages threshold as to whether an accident must be reported, the labor costs reported are only the direct labor costs to the railroad (i.e., hourly wages, transportation cost and hotel expenses). The cost of fringe benefits and overhead are excluded when calculating these costs. For services performed by a contractor, the direct hourly labor cost is calculated by multiplying the contractor's total labor hours charged to the railroad by the hourly wage rate for the railroad worker in that particular craft.

Material costs are not to be based upon the cost of acquiring new material, if the railroad chooses to use refurbished or used material in its actual repairs.

Internal Control Plan

Railroads are required to prepare and maintain an Internal Control Plan, which requires various departments within a railroad to coordinate accidents/incidents information. The office which is responsible for reporting to the FRA shall have access to all claims records, medical records, payroll records, and be notified by claims and
medical departments of each new case opened by a railroad worker. The ICP shall include the following 10 components:27/

(1) A policy statement indicating the railroad’s commitment to complete an accurate reporting of all accidents/incidents, injuries, and occupational illnesses. The statement shall include, in absolute terms, that harassment or intimidation of any person that is calculated to discourage or prevent such person from receiving proper medical treatment or from reporting an accident, incident, injury or illness will not be permitted or tolerated and will result in disciplinary action against such person committing the harassment or intimidation.

(2) All employees shall be provided a copy of the ICP. Any person complaining about a violation of the policy must be provided “whistle blower” protection.

(3) Copies of all internal forms and the computer reporting system.

(4) A description of the internal procedures used to process forms and computer data.

(5) Procedures applicable to the accident and incident information which is collected, and the reports prepared by each of the railroads various departments engaged in collecting and reporting accident and incident information.

(6) Procedures for collecting cost data.

(7) Procedures for ensuring adequate communication between the railroad department responsible for submitting accident/incident reports to FRA and any other department within the railroad which collects, receives, processes and reports accidents and incidents.

(8) Procedures for updating accident and incident information prior to reporting to FRA.

(9) Name and title of the railroad officer responsible for auditing the reporting.

(10) An organization chart of the railroad.

27/ Shortlines are exempted from the requirements of 3 through 10. However, the shortlines must still adopt and comply with the intimidation and harassment requirements of subparts one and two which require the railroads to prepare a policy statement setting forth each railroad’s commitment to complete and accurate reporting of all accidents, etc., and which contains harassment and intimidation provisions. Also, a copy of such plan must be delivered to each employee.
The penalty schedule is amended to include that a railroad may be fined for both the failure to accurately report a violation, and any departure from the ICP. The civil penalty is $2,500 or, if willful, $5,000 for each violation.

Report Not Evidence In Suits for Damages

No carrier's monthly accident report or any report of an investigation by the NTSB, or any part thereof, shall be admitted as evidence or shall be used for any other purpose in any suit for damages growing out of any matter mentioned therein.

Definitions

Contractor: Is an employee of a contractor for a railroad who does not receive direct monetary compensation from the railroad and who, while on railroad property, is engaged in either (i) the operation of on-track equipment or (ii) any other safety sensitive function for the railroad. There is no requirement for the railroad to report injuries to contractor employees.

Day away from work: Any day subsequent to the day of the injury or diagnosis of occupational illness that a railroad worker does not report to work for reasons associated with his or her condition.

Day of Restricted Work Activity: Any day that a worker is restricted in his or her job following the day of the injury or diagnosis of occupational illness.

Establishment: A single physical location where workers report to work, where business is conducted or where services or operations are performed. (At a minimum, it is a location where railroad employees could reasonably expect to report during a 12 month period).

First Aid Treatment: Simple procedures used to treat minor conditions, such as abrasions, cuts, bruises, or splinters. First aid treatment is typically confined to a single treatment and does not require special skills or procedures.

Medical Treatment: Any medical care or treatment beyond “first aid” regardless of who provides such treatment. Medical treatment does not include diagnostic procedures, such as X-rays and drawing blood samples. Medical treatment also does not include preventive emotional trauma counseling provided by the railroad’s employee counseling and assistance office unless the participating worker has been diagnosed as having a mental disorder that was significantly caused or aggravated by an accident/incident and this condition requires a regimen of treatment to correct.

Non-Train Incident: An event that results in a reportable casualty, but does not involve the movement of on-track equipment, nor cause reportable damage above the threshold established for train accidents.

Person: Any system of surface transportation of persons or property over rails.
It includes line haul freight and passenger railroads, switching and terminal railroads and passenger-carrying railroads including, but not limited to, rapid transit, commuter, scenic, subway, elevated, cable and cog railways. Also, covered are independent contractors and their employees and workers, as well as volunteers.

**Qualified Health Care Professional:** Includes a professional operating within the scope of his or her license, registration or certification. (The railroad’s employee assistance officer is considered a qualified health care professional when he/she provides counseling to an employee who has been diagnosed as having a mental disorder that was caused or aggravated by an accident/incident.

**Train Accident:** Any collision, derailment, fire, explosion, act of God, or other event involving operation of railroad on-track equipment (standing or moving) that results in reportable damages greater than the current reporting threshold (currently $6,700) to railroad on-track equipment, signals, track, track structures, and roadbed.

**Train Incident:** An event involving the movement of on-track equipment that results in a reportable casualty but does not cause reportable damage above the threshold established for train accidents.

**Volunteer:** Includes individuals who willingly perform a service for the reporting railroad, who do not receive direct monetary compensation from the railroad and who are not involved in either (i) the operation of on-track equipment or (ii) any other safety-sensitive function for the reporting railroad as described in § 209.303.

**Worker On Duty:** Is defined as one who receives direct monetary compensation from a railroad or who is engaged in either (i) the operation of on-track equipment or (ii) any other safety sensitive function for the railroad.

**Applicability**

The accident/incident reporting requirements will apply to all railroads and independent contractors except:

(a) A railroad that operates freight trains only on track inside an installation which is not part of the general railroad system of transportation or that owns no track except for track that is inside an installation that is not part of the general railroad system of transportation;

(b) rail mass transit operations in an urban area that are not connected with the general railroad system of transportation; and

(c) a railroad that exclusively hauls passengers inside an installation that is insular or that owns no track except for track used exclusively for the hauling of passengers inside an installation that is insular.

An operation will not be considered insular if one or more of the following exists
on its line: (1) A public highway-rail grade crossing that is in use; (2) an at-grade rail crossing that is in use; (3) a bride over a public road or waters used for commercial navigation; or (4) a common corridor with a railroad, ie., its operations are within 30 feet of those of any railroad.

Investigation

It is the policy of the FRA to investigate rail transportation accidents/incidents which result in the death of a railroad employee or the injury of 5 or more persons. Other accidents/incidents are investigated when it appears an investigation would substantially serve to promote railroad safety.

FRA representatives are authorized to investigate accidents/incidents and have been issued credentials authorizing them to inspect railroad reports and property. They are authorized to obtain all relevant information concerning accidents/incidents under investigation, to make inquiries of persons having knowledge of the facts, conduct interviews and inquiries and to attend as an observer hearings conducted by railroads.

Whenever necessary the FRA will schedule a public hearing before an authorized hearing officer in which event testimony will be taken under oath, a record made and the opportunity provided to question witnesses.

When necessary in the conduct of an investigation the Federal Railroad Administrator may require autopsies and other tests of the remains of railroad employees who die as of the result of an accident/incident.

Information obtained through FRA investigations may be published in public reports or used for other purposes FRA deems to be appropriate.

Where An Employee is Alleged to Have Caused Accident/Incident:

In the Rail Safety Improvement Act of 1988, Congress made changes in the accident reporting requirements. If human error is assigned as a cause of an accident or incident, the employee may explain any factors he or she alleges contributed to the accident or incident. The FRA is required to file such statement with the report it receives from the railroad.

1. If a railroad cites an employee human factor as the primary cause or a contributing cause of an accident, then the railroad is required to fill out a new form titled Employee Human Factor Attachment. On a separate form, the railroad must notify the employee(s) of the allegations involved within 45 days after the end of the month in which the accident occurred.

2. If joint rail operations are involved, the railroad which makes the allegations concerning the employee of another railroad, the employing railroad is required to promptly provide the name, job title, address and medical status of the employee identified. Where the railroad is initially unable to identify a particular
employee, but subsequently makes such identification, a revised report must be
immediately submitted to the FRA, with a copy to the employee within fifteen days after
the report is filed with the FRA. The railroad which is reporting the accident may defer
notification of an implicated employee on medical grounds where the employee is
seriously injured in the accident.

3. If the employee has been killed as a result of an accident, no notice is
required to be sent by the railroad to any person (FRA's rationale is that they investigate
every accident which an employee is killed).

4. The regulation makes it clear that the employee's statement is completely
voluntary. The failure of the employee to respond to a charge that he caused the accident
does not imply that the employee either admits or denies the railroad's conclusion as to
the cause of an accident.

5. The employee's statement must be submitted to the FRA, as well as to the
railroad, within 35 days after the employee was notified of the allegation. If an employee
wishes to provide confidential information to the FRA, the employee should not use the
form that is provided under this regulation. Rather, the employee should provide the
confidential information by other means, such as a letter to the collective bargaining
representative or to the office of safety at the FRA.

6. A person who willfully files a false statement with the FRA is subject to a
civil penalty up to $5,000. If a person knowingly and willfully files a false statement he
is subject to a $5,000 fine or two years imprisonment, or both, under the Federal Railroad
Safety Act provisions.

7. Once the railroad receives the employee's analysis of the accident, the
railroad must make all justified revisions to the original accident report forms. (The
railroad is not required to send the employee a copy of the revised forms).

8. The accident report form shall be submitted by the railroad within 30 days
after the expiration of the month in which the accident/incident occurred.

FORMS:

1. FRA Form F 6180-54---Rail Equipment Accident/Incident Report

   This is the basic form which must be filed for all accidents or incidents. Amended reports must be filed if the damages are at least 10% higher than the amount originally reported to the FRA.

2. FRA Form F6180-55a---Railroad Injury and Illness summary:

   (a) In hazardous materials accidents, the railroad shall submit the number of persons injured and the type of injury resulting from exposure.
(b) It requires information as to the county where the incident occurred, as well as the day of the month and the time of day.

(c) Additional information on the form concerning injuries and illnesses include physical acts, location, event, result, and cause.

(d) A railroad is given an opportunity to provide details on any unusual circumstance surrounding the worker’s injury or illness.

(e) The FRA has expanded the classifications of persons for reporting purposes:

1. Worker on Duty - Employee (Class A),
2. Employee not on Duty (Class B),
3. Passengers on Trains (Class C),
4. Non trespassers - On Railroad Property (Class D),
5. Trespassers (Class E),
6. Worker on Duty - Contractor (Class F),
7. Contractor - Other (Class G),
8. Worker on Duty - Volunteer (Class H),
9. Volunteer - Other (Class I), and

3. **FRA Form F 6180.57---Highway-Rail Grade Crossing Accident/Incident Report**

(a) The railroads must include the number of highway-rail grade crossing users (i.e., pedestrians and vehicle occupants) killed and injured; the total number of crossing users involved in the incident (including the driver); the number of railroad employees killed and injured; the total number of people on the train at the time of the incident (including passengers and train crew); the number of train passengers killed and injured.

(b) The FRA has eliminated the distinction involving Amtrak and Autotrain accidents at crossings.

(c) The FRA clarified a problem under the existing form as to whether or not the warning signal was operating. The problem arises where there is a passive device and the railroad reported it as not operating.

(d) A narrative description is required in order to gather information on unusual causes or circumstances surrounding the grade crossing accidents.

(e) There is a special study block set aside so that FRA can obtain information on particular trends or initiate corrections of identified problems.

(f) There is a section requiring information on whether whistle bans were in effect and observed at the time of the accident/ incident.
(g) The requirement to add the drivers age and gender on the form is optional with the railroad.

(h) The form also contains a block which would allow for the collection of information regarding situations where motorists are trapped by other vehicle traffic at crossings.

4. **FRA Form F 6180.78---Notice to Railroad Employee Involved in Rail Equipment Accident/Incident Attributed to Employee Human Factor**

   A railroad is required to notify an employee if he or she is determined by the railroad to be a contributing cause to an accident. This was discussed on a previous page in some detail, and this form is to be completed by the employee.

5. **FRA Form F 6180.98---Record Keeping: Railroad Employee Injury and/or Illness Record**

   All injuries and illnesses to a railroad employee that arises from the operation of the railroad and causes the employee to be examined or treated by a qualified health care professional must be recorded on this form, or an alternative railroad-designated record form. It should be noted that this form is to record an injury or illness. It may become reportable if certain consequences later occur. For example, a minor cut may become infected and require medical treatment. The record of all injuries and illnesses must be maintained at each railroad establishment where such employees report to work. (That is, an establishment where workers report to work at an operating division, general office, or major installation such as a locomotive or car repair or construction facility). The railroad is required to provide an employee a copy of the record of the illness or injury.

6. **FRA Form F 6180.97---Initial Rail Equipment Accident/Incident Record**

   This form is used to record equipment accidents and incidents which are not reportable to FRA, but are required to be recorded. Both reportable and accountable (i.e., recordable) rail equipment accidents and incidents must be listed on this form. The railroads can design and use its own form as an alternative to Form 6180.97, so long as the same information is provided.

**Updating Forms 6180.97 and 6180.98**

The railroad is required to record or report injuries, illnesses, accidents, and incidents no later than 7 working days after receiving information or acquiring knowledge of the occurrence. Additionally, if either record is maintained at a centralized location, but not through electronic means, then a paper copy of the record or report must be current within 35 days of the month to which it applies and be available at the appropriate establishment. If the record for an establishment is maintained at a central location through electronic means, such record must be available for review in a hard
copy format within 4 business hours of the request.

Logging Accountable Accident/Incident or Injury/Illness

The current regulation requires a railroad to log each reportable and each "accountable" rail equipment accident/incident and injury or illness not later than 7 days after receiving knowledge of the event. An "accountable injury or illness" includes "any condition, not otherwise reportable, of a railroad worker that is associated with an event, exposure, or activity in the work environment that causes or requires the worker to be examined or treated by a qualified health care professional..." An "accountable rail accident/incident" is defined as a "any event, not otherwise reportable, involving the operation of on-track equipment that causes physical damage to either the on-track equipment or the track upon which such equipment was operated and that requires the removal or the repair rail equipment from the track before any rail operations over the track can continue..." The shortlines, and the tourist and museum railroads petitioned to eliminate the "accountable" recording keeping requirements as it applies to them. The FRA has granted partial relief to those railroads which have 15 or fewer employees and those railroads which operate or own track exclusively of the general system. Those railroads will not be required to log "accountable" injuries/illnesses or accidents/incidents. However, they will be required to log "reportable" events.

Posting Monthly List Of Injuries and Illnesses

The railroad shall post a listing of all injuries and occupational illnesses in a conspicuous location at each railroad establishment within 30 days after the end of the month during which the injury and illness occurred. (This posting will be necessary only for those establishments that are in continual operation for a minimum of 90 calendar days or more. For those locations that are not in continual operation, the posting of the injuries and illnesses must be made at the next higher organizational level). The posting shall remain continually displayed for twelve months. § 225.25(h) sets out what must be contained in the information that is posted.

Retention of Records

The railroads are required to retain injury and illness records for 5 years, and the accident and incident records for 2 years.

Access To Records Reports

Any representative of a state agency participating in investigative and surveillance activities under the Federal railroad safety laws and regulations shall have access to all records, reports, logs, and supplementary information filed in accordance with the regulations.

The railroads shall have at least one location where both Federal and State inspectors will have centralized access to a copy of all records and reports.
Upon request, the railroad is required to provide the employee either a copy of the completed Form 6180.98, or the alternative railroad designed form, which is the employee injury and/or illness record. A railroad is required to grant access only to forms or reports required to be maintained or filed under the accident reporting regulations which pertain to that employee’s on work-related injury or illness. In other words, the rule does not require the railroads to produce privileged documents. However, this does not mean that the employee, under the appropriate circumstances, would be unable to obtain such documents. For example, in an FELA action, an employee may seek production of records in a railroad’s files, and if privilege is asserted, then this matter would be dealt with by the judge. It should be kept in mind that the Accident Reports Act does not preclude disclosure of documents; rather, it precludes the “use” of such documents in court.

**Magnetic Media Transfer and Electronic Submission**

Railroads are allowed to submit accident reporting data to FRA by two alternate means: (1) magnetic media (computer diskette or magnetic tape), or (2) electronically, over telephonic lines. Using either option, the railroad must submit monthly reporting data to FRA in a cumulative year-to-date file format. If the railroad utilizes the magnetic media, it must submit the disk or tape, the batch control form, and a notarized hard copy signed by the railroad’s reporting officer. The notarization is required by statute.

The requirement for electronic submission is similar to the magnetic media submissions, except that the year-to-date information must be transmitted to an FRA-designated computer. Still the railroad must submit the notarized hard copy. If the magnetic media or electronic submission is in total agreement with the hard copies that are submitted for 3 consecutive reporting months, FRA will notify the railroad that the hard copy reports will no longer be required. Still, the notarization on the railroad injury and illness summary is required.

**Tourist and Museum Railroads**

The tourist and museum railroads sought an exemption from the reporting requirements. The FRA granted them partial relief. They will not be required to report non-train incidents, unless the non-train incidents involve in-service on track railroad equipment. They must still comply with the requirement of recording injuries and illnesses resulting from a train accident, a train incident, or a non-train incident that involves railroad equipment in operation but not moving. The tourist railroads, which operate on the general system of railroads, must post the monthly list of reportable injuries and illnesses for each establishment. Plant railroads and insular of the general system tourist railroads are not required to post.

Appendix A-Schedule of Penalties
Appendix B-Procedure For Determining Reporting Threshold
The National Transportation Safety Board ("NTSB") consists of 5 members (each one serving 5 years) has the authority to investigate all train accidents resulting in serious injury to any person or in damage to property of the railroad. It is an independent federal agency.

Any investigation of an accident by the Board shall have priority over all other investigations of such accident. If any accident is investigated by a federal agency or a state commission, the NTSB may, if convenient, make an investigation the same time.

The operator of a railroad shall notify the Board by telephoning the National Response Center by telephone 800-424-0201 at the earliest practicable time after the occurrence of any one of the following railroad accidents:28/

(a) No later than 2 hours after an accident which results in:

   (1) A passenger or employee fatality or serious injury to 2 or more crew members or passengers requiring admission to a hospital;

   (2) The evacuation of a passenger train;

   (3) Damage to a tank car or container resulting in release of hazardous materials or involving evacuation of the general public; or

   (4) A fatality at a grade crossing.

(b) No later than 4 hours after an accident which does not involve any of the circumstances enumerated in paragraph (a) of this section but which results in:

   (1) Damage (based on a preliminary gross estimate) of $150,000 or more for repairs, or the current replacement cost to railroad and nonrailroad property; or

   (2) Damage of $25,000 or more to a passenger train and railroad and nonrailroad property.

(c) Accidents involving joint operations must be reported by the railroad that controls the track and directs the movement of trains where the accident has occurred.

28/ The NTSB has issued a rule that requires the operator of a railroad to preserve intact and make no attempt to extract data from any event recorder or data pack from any event recorder, any speed tape, or any other recording medium that contains information in any way pertinent to the accident for which notification has been given, until the NTSB takes custody of the information.
(d) Where an accident for which notification is required by paragraph (a) or (b) of this section occurs in a remote area, the time limits set forth in that paragraph shall commence from the time the first railroad employee who was not at the accident site at the time of its occurrence has received notice thereof.

NTSB employees may only testify as to the factual information they obtained during the course of an investigation, including factual evaluations embodied in their factual accident reports. However, they shall decline to testify regarding matters beyond the scope of their investigation, and they shall not give any expert or opinion testimony.

Public access to information.

Copies of any communication, document, investigation, or other report or information in the NTSB's possession shall be made available to the public, except for certain trade secrets.

Use of reports.

(a) No part of any Board report relating to an accident investigation shall be admitted as evidence or used in any lawsuit.

(b) An NTSB employee may use a copy of his factual accident report as a testimonial aid, and may refer to that report during his testimony or use it to refresh his memory.

(c) An NTSB employee may not use the Board's accident report for any purpose during his testimony.

Manner in which testimony is given.

(a) Testimony of NTSB employees may be made available for use in actions or suits for damages arising out of accidents through depositions or written interrogatories. NTSB employees are not permitted to appear and testify in court in such actions.

(b) Normally, depositions will be taken and interrogatories answered at the NTSB's office to which the employee is assigned, and at a time arranged with the employee reasonably fixed to avoid substantial interference with the performance of his duties.

(c) NTSB employees are authorized to testify only once in connection with any investigation they have made of an accident. Consequently, when more than one lawsuit arises as a result of an accident, it shall be the duty of counsel seeking the employee's deposition to ascertain the identity of all parties to the multiple lawsuits and their counsel, and to advise them of the fact that a deposition has been granted, so that all interested parties may be afforded the opportunity to participate therein.
(d) Upon completion of the deposition of an NTSB employee, a copy of the transcript of the testimony will be furnished, at the expense of the party requesting the deposition, to the NTSB's Counsel.

**Request for testimony.**

(a) A request for testimony of an NTSB employee relating to an accident by deposition or interrogatories shall be addressed to the General Counsel, who may approve or deny the request. Such request shall set forth the title of the case, the court, the type of accident (aviation, railroad, etc.), the date and place of the accident, the reasons for desiring the testimony, and a showing that the information desired is not reasonably available from other sources.

(b) The General Counsel shall attach to his approval such reasonable conditions as he may deem appropriate in order that the testimony will be limited to the matters delineated in these rules, will not interfere with the performance of the duties of the employees, and will otherwise conform to the policies of this part.

(c) A subpoena shall not be served upon an NTSB employee in connection with the taking of his deposition.

**Testimony of former NTSB employees.**

It is not necessary to request NTSB approval for testimony of a former NTSB employee. However, the scope of testimony of former NTSB employees is limited to the matters delineated in these rules, and use of reports as prescribed in these rules.

**Procedure in the event of a subpoena.**

(a) If an NTSB employee has received a subpoena to appear and testify, a request for his deposition shall not be approved until the subpoena has been withdrawn.

(b) Upon receipt of a subpoena, the employee shall immediately notify the General Counsel and provide the data identifying the accident; the title of the case, the name of the judge, if available, and the title and address of the court; the type of accident (aviation, railroad, etc.); the date on which the employee is directed to appear; the name, address, and telephone number, if available, of the attorney representing the party who caused the issuance of the subpoena; the scope of the testimony, if known; and a statement as to whether a prior deposition on the same accident has been given.

(c) The General Counsel shall determine the course of action to be taken and will so advise the employee.

**Testimony in State or local investigations.**

NTSB employees may testify at a coroner's inquest, grand jury, or criminal proceeding conducted by a State or local government. Testimony shall be limited to the
Response to NTSB recommendations.

Whenever the Board submits a recommendation regarding transportation safety to the Secretary of the DOT, the Secretary shall respond within 90 days. The Secretary shall adopt the recommendations or set forth in detail the reasons for such refusal.

The Board shall publish in the Federal Register each recommendation and the response by the Secretary.

FEDERAL CLAIMS COLLECTION ACT

The Federal Claims Collection Act ("FCCA") authorizes the FRA to either compromise or cause collection action to be terminated or suspended on claims which do not exceed $20,000, exclusive of interest. This authority, however, shall not be exercised with respect to a claim as to which there is an indication of fraud, the presentation of a false claim or misrepresentation on the part of the railroad.

Compromise shall be final and conclusive except if procured by fraud, misrepresentation, the presentation of a false claim, or mutual mistake of fact.

Nothing in the FCCA is to be construed as either increasing or diminishing the existing authority of FRA to litigate claims or to diminish existing authority to settle, compromise or close claims.

As it applies to penalties for railroad safety violations, the FCCA has been limited by the Federal Railroad Safety Act of 1970, the Safety Appliance Acts, Signal Inspection Act, and the Locomotive Inspection Act. Under FCCA, the Secretary of Transportation may not compromise any civil penalty for a violation of these safety Acts or regulations issued under these laws for less than $250 for each violation.

31 U.S.C. § 3711
GLAZING STANDARDS AND MARKING OF WINDOWS

All newly built and most existing railroad equipment (i.e., locomotives, passenger cars, and cabooses) are required to have safety glazing materials installed in them in order to reduce the risk of death or serious injury resulting from flying objects, including bullets.

Each passenger car, except mail, baggage or express cars shall ensure that each emergency window is conspicuously and legibly marked with luminescent material on the inside of each car. Each railroad shall post clear and legible operating instructions at or near each such exit.

Each window intended for emergency access by emergency responder shall be marked with a retroflective, unique, and recognizable marking. The window access instructions shall be posted either at each such window or at the end of each car.

Appendix A – Certification of Glazing Material
Appendix B-Schedule of Penalties

49 C.F.R. §§ 223.1-223.17
TRACK MOTOR CARS

Each track motor car shall be equipped with an efficient hand brake so located that it can be safely operated while the car is in motion. Each hand brake shall be equipped with a ratchet or other suitable device which will provide a means of keeping the brake applied when the car is not in motion. The requirements of this rule will be satisfied if the ratchet or other suitable device operates in connection with at least one hand brake on track motor cars that may be equipped with more than one such brake.

One or more safe or suitable handholds conveniently located shall be provided and securely fastened to each motor car.

Each track motor car shall be equipped with safe and suitable sillsteps or footboards conveniently located and securely fastened to the car when bed or deck of track motor car is more than 24 inches above the top of the rail.

When used to haul other cars, each track motor car shall be equipped with a coupler at each end where such cars are coupled (1) which provides a safe and secure attachment, (2) which can be coupled or uncoupled without the necessity of men going between the ends of the cars.29/

49 C.F.R. § 231.25

29/ In 1963 a rule was issued which made it unlawful for any railroad to operate or permit to be operated on its line track motor cars to pull or haul trailers, pushtrucks, handcars, or similar cars or equipment. However, this rule has been stayed indefinitely and never has gone into effect.
BRIDGE SAFETY STANDARDS FOR MAINTENANCE OF WAY EMPLOYEES

Subpart A - General

49 C.F.R. § 214.1 Purpose and Scope

(a) The purpose and scope of this part is the prevention of accidents and casualties to employees involved in certain railroad inspection, maintenance and construction activities.
(b) This part prescribes minimum Federal safety standards for the railroad workplace safety subjects addressed herein. This part does not restrict a railroad or railroad contractor from adopting and enforcing additional or more stringent requirements not inconsistent with this part.

§ 214.3 Application

This part applies to railroads that operate rolling equipment on track that is part of the general railroad system or transportation

§ 214.5 Responsibility for Compliance

Any person (including a railroad and any manager, supervisor, official, or other employee or agent of a railroad or railroad contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to civil penalty of at least $250 and not more than $10,000 per violation, except that penalties may be assessed against individuals only for willful violations, and where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury, or has caused death or injury, a penalty not to exceed $20,000 per violation may be assessed.

§ 214.7 Definitions

Definitions are provided for anchorage, body belt, body harness, lanyard, lifeline, personal fall arrest system, railroad, railroad employee, competent person, deceleration device, equivalent, free fall, free fall distance, railroad bridge, self-retracting lifeline/lanyard and snap-hook.

Subpart B - Bridge Worker Safety Standards

§ 214.101 Purpose and Scope

(a) The purpose and scope of this Subpart is the prevention of accidents and casualties arising from the performance of work on railroad bridges.
(b) This Subpart prescribes minimum railroad safety requirements for railroad employees performing work on bridges. Each railroad and railroad contractor may
prescribe additional or more stringent operating rules, safety rules, and other special instructions not inconsistent with this Subpart.

(c) These provisions apply to all railroad employees, railroads, and railroad contractors performing work on railroad bridges.

(d) Any working conditions involving the protection of railroad employees working on railroad bridges not within the subject matter addressed by this Chapter, including respiratory protection, hazard communication, hearing protection, welding and lead exposure standards, shall be governed by the regulations of the U.S. Dept. of Labor, Occupational Safety and Health Administration.

§ 214.103 Fall Protection, Generally

(a) Except as provided in paragraphs (b) through (d) of this section, a personal fall arrest system or safety net system shall be provided and shall be used where employees are working at least twelve feet above ground or water surface. All fall protection systems required by this section shall conform to the standards set forth in §214.105 of this Subpart.

(b) Installation of the fall arrest system is exempt where installation presents a greater hazard than does the work to be performed. In any action brought by the FRA to enforce the fall protection requirements, the railroad or railroad contractor shall have the burden of proving that the installation of such device poses the greater risk.

Also, this section shall not apply to, employees engaged in inspection of railroad bridges where the railroad or railroad contractor has a written program requiring training in, adherence to and use of safe procedures associated with climbing; the employee has been trained and qualified according to such program and has been voluntarily designated to perform inspections under that program; the employee is familiar with the appropriate climbing techniques associated with all bridge structures that he/she is responsible for inspecting; the employee is engaged solely in moving on or about the bridge or observing, measuring, and recording the dimensions and condition of the bridge; and the employee is provided all equipment necessary to meet the needs of safety.

(c) Additional fall protection is not required on bridges where walkways and railings of sufficient height, width, and strength to prevent a fall exits, provided that the employee does not work beyond the railings, over the side of the bridge, on ladders or other elevation devices, or where gaps or holes exist through which a body could fall. Where used in place of fall protection as provided for in §214.105, walkways and railings meeting standards set forth in the American Railway Engineering Association's Manual For Railway Engineering satisfy this subsection; and this section is not violated where there are roadways attached to railroad bridges, provided that employees on the roadway deck work or move at a distance of six feet or more from the edge of the roadway deck, or from an opening through which a person could fall.

(d) This section shall not apply where employees are performing repairs or inspections of a minor nature that are completed by working exclusively between the outside rails, including, but not limited to, routine welding, spiking, anchoring, spot
surfacing, and joint bolt replacement.

§ 214.105 Fall Protection Systems Standards and Practices

(a) General requirements. All fall protection systems required by this chapter shall conform to the following:

1. Fall protection systems shall be used only for employee fall protection.

2. Once subject to impact loading, the fall protection system must be immediately and permanently removed from service unless fully inspected and determined by a competent person to be undamaged and suitable for reuse.

3. All fall protection system components shall be protected from abrasions, corrosion, or any other form of deterioration.

4. All fall protection system components shall be inspected prior to each use for wear, damage, corrosion, mildew, and other deterioration. Defective components shall be permanently removed from service.

5. Prior to use and after any component or system is changed, employees shall be trained in the application limits of the equipment, proper hook-up, anchoring and tie-off techniques, methods of use, and proper methods of equipment inspection and storage.

6. The railroad or railroad contractor shall provide for prompt rescue of employees in the event of a fall.

7. Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.

8. Connectors shall be drop forged or pressed or formed steel or made of equivalent-strength materials.

9. Anchorages, including single- and double-head anchors, shall be capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used under the supervision of a qualified person as part of a complete personal fall protection system that maintains a safety factor of at least two.

(b) Personal fall arrest systems. All components of a personal fall arrest system shall conform to the following standards:

1. Lanyards and vertical lifelines that tie off one employee shall have a minimum breaking strength of 5,000 pounds.

2. Self-retracting lifelines and lanyards that automatically limit free fall distance to two feet or less shall have components capable of sustaining a minimum static tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully
extended position.

(3) Self-retracting lifelines and lanyards that do not limit free fall distance to two feet or less, ripstitch, and tearing and deformed lanyards shall be capable of withstanding 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

(4) Horizontal lifelines shall be designed, installed, and used under the supervision of a competent person, as part of a complete personal fall arrest system that maintains a safety factor of at least two.

(5) Lifelines shall not be made of natural fiber rope.

(6) The personal fall arrest system shall limit the maximum arresting force on an employee to 900 pounds when used with a body belt.

(7) The personal fall arrest system shall limit the maximum arresting force on an employee to 1,800 pounds when used with a body harness.

(8) The personal fall arrest system shall bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.

(9) The personal fall arrest system shall have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of six feet, or the free fall distance permitted by the system, whichever is less.

(10) The personal fall arrest system shall be arranged so that an employee cannot free fall more that six feet and cannot contact the ground or any lower horizontal surface of the bridge.

(11) The personal fall arrest systems shall be worn with the attachment point of the body belt located in the center of the wearer's back, and the attachment point of the body harness located in the center of the wearer's back near shoulder level, or above the wearer's head.

(12) When vertical lifelines are used, each employee shall be provided with a separate lifeline.

(13) Devices used to connect to a horizontal lifeline that may become a vertical lifeline shall be capable of locking in either direction.

(14) Dee-rings and snap-hoops shall be capable of sustaining a minimum tensile load of 3,600 pounds without cracking, breaking or taking permanent deformation.

(15) Dee-rings and snap-hoops shall be capable of sustaining a minimum tensile load of 5,000 pounds.
(16) Snap-hooks shall not be connected to each other.

(17) Snap-hooks shall be dimensionally compatible with the member to which they are connected to prevent unintentional disengagement, or shall be locking snap-hook designed to prevent unintentional disengagement.

(18) Unless of a locking type, snap-hooks shall not be engaged:

(i) Directly next to webbing, rope, or wire rope;

(ii) To each other;

(iii) To a dee-ring to which another snap-hook or other connector is attached;

(iv) To a horizontal lifeline; or

(v) To any object that is incompatibly shaped to dimensioned in relation to the snap-hook so that unintentional disengagement could occur.

(c) Safety net systems. Use of safety nets systems shall conform to the following standards and practices:

(1) Safety nets shall be installed as close as practicable under the walking/working surface on which employees are working, but shall not be installed more than 30 feet below such surface.

(2) Employees shall be protected by personal fall arrest systems when working surface to the net exceeds 30 feet.

(3) The safety net shall be installed such that any fall from the working surface to the net is unobstructed.

(4) Except as provided in this subsection, safety nets and installation shall be drop-tested at the job site after initial installation and prior to being used as a fall protection system, whenever relocated, after major repair, and at six-month intervals if left in one place. The drop-test shall consist of a 400 pound bag of sand 30 inches, plus or minus two inches, in diameter dropped into the net from the highest (but not less than 3 1/2 feet) working surface on which employees are to be protected.

When the railroad or railroad contractor demonstrates that a drop-test is not feasible and, as a result, the test is not performed, the railroad or railroad contractor, or designated competent person, shall certify that the net and its installation are in compliance with the provisions of this section by preparing a certification record prior to use of the net. The certification shall include an identification of the net, the date it was determined that the net was in compliance with this section, and the signature of the
person making this determination. Such person's signature shall certify that the net and its installation are in compliance with this section. The most recent certification for each net installation shall be available at the job site where the subject net is located.

(5) Safety nets and their installations shall be capable of absorbing an impact force equal to that produced by the drop test specified in this section.

(6) The safety net shall be installed to prevent a falling body's contact with any surfaces or structures below the net when subjected to an impact force equal to the drop test specified in this section.

(7) Safety nets shall extend outward from the outermost projection of the work surface as follows:

(i) When the vertical distance from the working level to the horizontal plane of the net is 5 feet or less, the minimum required horizontal distance of the outer edge of the net beyond the edge of the working surface is 8 feet.

(ii) When the vertical distance from the working level to the horizontal plane of the net is more than 5 feet, but less than 10 feet, the minimum required horizontal distance of the outer edge of the net beyond the edge of the working surface is 10 feet.

(iii) When the vertical distance from the working level to the horizontal plane of the net is more than 10 feet, the minimum required horizontal distance of the outer edge of the net beyond the edge of the working surface is 13 feet.

(8) Defective nets shall not be used. Safety nets shall be inspected at least once a week for mildew, wear, damage, and other deterioration. Defective components shall be removed permanently from service.

(9) Safety nets shall be inspected after any occurrence that could affect the integrity of the safety net system.

(10) Tools, scraps, or other materials that have fallen into the safety net shall be removed as soon as possible, and at least before the next work shift.

(11) Each safety net shall have a border rope for webbing with a minimum breaking strength of 5,000 pounds.

(12) The maximum size of each safety net mesh opening shall not exceed 36 square inches and shall not be longer than 6 inches on any side measured center-to-center of mesh ropes or webbing. All mesh crossing shall be secured to prevent enlargement of the mesh opening.

(13) Connections between safety net panels shall be as strong as integral net
components and shall be spaced not more that 6 inches apart.

§ 214.107  Working Over or Adjacent to Water

(a) Where the danger of drowning exists or the water is four or more feet deep, employees shall be provided with life jackets or buoyant work vests meeting the U.S. Coast Guard requirements stipulated in 46 CFR 160.047, 160.052, 160.053. Life preservers complying with U.S. Coast Guard regulations in 46 C.F.R. 160.055 must also be available. This section shall not apply to employees using personal fall arrest systems or safety nets that comply with this Subpart.

(b) Life vests or buoyant work vests shall not be required when employees are conducting inspections that involve climbing structures above or below the bridge deck.

(c) Buoyant vests and life preservers shall be inspected before and after each use by properly trained individuals who have been designated by the railroad. Units with defects that reduce strength or buoyancy are not to be used.

(d) Ring buoys (complying with U.S. Coast Guard requirements at 46 C.R.F. 160.050) with at least 90 feet of line are to be readily available for emergency rescue operations with a distance between buoys of no more than 200 feet.

(e) Requires at least one life-saving skiff, inflatable boat, or equivalent device shall be immediately available determined by a competent person that environmental conditions, including water, water speed, and terrain, merit additional protection, the skiff or boat shall be manned.

§ 214.109  Scaffolding

(a) Scaffolding used in connection with railroad bridge maintenance, inspection, testing, and construction shall be constructed and maintained in a safe condition and meet the following minimum requirements:

    (1) The strength of scaffolds and their components, except suspension ropes and guardrail systems, but including footings and anchorage, shall be able to support its own weight and at least four times the maximum intended load applied and transmitted to that scaffold or scaffold component.

    (2) Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied within two inches of the top edge, in any outward or downward direction, at any point along the top edge.

    (3) Top edge height of toprails, or equivalent guardrail system member, shall be 42 inches, plus or minus three inches. Supports shall be at intervals not to exceed eight feet. Toeboards shall be a minimum of four inches in height.

    (4) Midrails, screens, mesh, intermediate vertical members, solid panels, and
equivalent structural members shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the midrail or other member.

(5) Midrails shall be installed at a height midway between the top edge of the guardrail system and the walking/working level.

(b) Movement or alteration of a scaffold while it is occupied is prohibited. This paragraph does not apply to vertical movements of mobile scaffolds that are designed to move vertically while occupied.

(c) An access ladder or equivalent safe access shall be provided.

(d) All exposed surfaces shall be prepared and cleared to prevent injury due to laceration, puncture, tripping, or falling hazards.

(e) All scaffold design, construction, and repair shall be completed by competent individuals trained and knowledgeable about design criteria, intended use, structural limitations, and procedures for proper repair.

(f) Manually propelled mobile ladder stands and scaffolds shall be capable of carrying the design load.

(1) All manually propelled mobile ladder stands and scaffolds be capable or carrying the design load.

(2) All ladder stands, scaffolds, and scaffold components shall have support capability of its own weight and at least four times the design working load applied and transmitted to that ladder stand, scaffold, or scaffold component.

(3) All exposed surfaces shall be free from sharp edges or burrs.

(4) The maximum work level height shall not exceed four times the minimum or least base dimensions of any mobile ladder stand or scaffold. When this requirement is not met by the basic mobile unit, either suitable outrigger frames must be used to achieve this least base dimension or the unit must be guyed or braced against tipping.

(5) The minimum work-level platform width for any work level shall not be less than 20 inches for mobile scaffolds (towers), a minimum step-width for ladder stands of 16 inches, and fabrication of ladder stand steps from slip-resistant treads.

(6) Guardrails and midrails shall conform to the requirements listed in paragraph (a) of this section.

(7) A climbing ladder or stairways for access and egress shall be affixed or built into the scaffold, and located so that its use will not have a tendency to tip the scaffold.
(8) Wheels or casters shall be designed to support four times the maximum intended load applied and transmitted to that component. All scaffold casters shall have a positive wheel and/or swivel lock to prevent movement, and ladder stands must have a swivel-type lock on at least two of the four casters.

§ 214.111 Personal Protective Equipment

With the exception of foot protection, the railroad or railroad contractor shall provide and the employees shall use appropriate personal protective equipment described in this Subpart in all operations where there is exposure to hazardous conditions, or where this Subpart indicates the need for using such equipment to reduce the hazards to railroad employees. The railroad or railroad contractor shall require the use of foot protection when the potential for foot injury exists.

§ 214.113 Head Protection

(a) Railroad employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be provided and shall wear protective helmets.

(b) Helmets for the protection of railroad employees against impact and penetration of falling and flying objects shall conform to the national consensus standards for industrial head protection (American National Standards Institute, Z89.2-1986).

(c) Helmets for the head protection of railroad employees exposed to high voltage electrical shock and burns shall conform to the national consensus standards (American National Standard Institute, Z89.2-1986).

§ 214.115 Foot Protection

(a) The railroad or railroad contractor shall require railroad employees to wear foot protection equipment when potential foot injury may result from impact, falling or flying objects, electrical shock or burns, or other hazardous condition.


§ 214.117 Eye and Face Protection

(a) Railroad employees shall be provided and shall wear eye and face protection equipment when potential eye or face injury may result from physical, chemical, or radiant agents.

(b) Eye and face protection equipment required by this section shall conform to the national consensus standards for occupational and educational eye and face protection.

(c) Face and eye protection equipment required by this section shall be kept clean and in good repair. Use of equipment with structural or optical defects is prohibited.

(d) Railroad employees whose vision requires the use of corrective lenses, when required by this regulation to wear eye protection, shall be protected by goggles or spectacle of one of the following types:

(i) Spectacles whose perspective lenses provide optical correction, the frame of which includes shielding against objects reaching the wearer's eyes around the lenses;

(ii) Goggles that can be worn over corrective lenses without disturbing the adjustment of the lenses; or

(iii) Goggles that incorporate corrective lenses mounted behind the protective lenses.

49 C.F.R. Part 214
VANDALISM

It is a federal crime to enter into any railroad train, car or locomotive with the intent to commit murder, robbery or any unlawful violence upon or against any passenger or crewman, or to commit any other crime against any person or property on the train.

It is unlawful to willfully derail, disable or wreck any railroad train, engine, motor unit or car used by any railroad that engages in interstate or foreign commerce.

It is also unlawful to willfully destruct or injure any property moving in interstate commerce by railroad.

15 U.S.C. § 1281

30/ To date the railway labor unions have attempted unsuccessfully to make it a federal crime to shoot at or throw objects at trains.
CLEAN, SAFE AND SANITARY CAMP CARS

With respect to sleeping quarters (i.e., camp cars) the maintenance of way employees are given the same protection as workers covered under the Hours of Service Act. That is, all railroads are required to furnish sleeping quarters that provide an opportunity for rest which must be clean, safe and sanitary, and free from interruptions caused by noise under the control of the railroad.31/

The FRA has issued guidelines for clean, safe and sanitary camp cars. They are as follows:

1. Definitions Applicable To These Guidelines.

   (a) **Camp cars** means trailers and on-track vehicles, including outfit, camp, or bunk cars or modular homes mounted on flat cars, used to house or accommodate railroad employees. Wreck trains are not included.

   (b) **Employee** means any worker whose service is covered by the Hours of Service Act or who is defined as an employee for purposes of section 2(a)(3) of that Act.

   (c) **Lavatory** means a basin or similar vessel used primarily for washing of the hands, arms, face, and head.

   (d) **Nonwater carriage toilet facility** means a toilet facility not connected to a sewer.

   (e) **Number of employees** means the number of employees assigned to occupy the camp cars.

   (f) **Personal service room** means a room used for activities not directly connected with the production or service function performed by the carrier establishment. Such activities include, but are not limited to, first-aid, medical services, dressing, showering, toilet use, washing and eating.

   (g) **Potable water** means water that meets the quality standards prescribed in the U.S. Public Health Service Drinking Water Standards, published at 42 C.F.R. Part 72, or is approved for drinking purposes by the State or local authority having jurisdiction.

   (h) **Toilet facility** means a fixture maintained within a toilet room for the

31/ The congressional Conference Report states that the section on sleeping quarters is not intended to cause elimination of camp cars. Therefore, if carriers can present persuasive evidence that the existing regulations would cause the elimination of camp cars, then the FRA shall review the guidelines as related to BMWE and determine (a) whether the carrier's claims are in fact correct; (b) whether the problem, if any, is best handled through a change in the noise standard or by a case-by-case review of specific situations (with waivers granted and conditioned as appropriate); and (c) whether a reasonable alternative exists so that a railroad would not override the employee's legitimate concerns and needs for uninterrupted rest.
purpose of defecation or urination, or both.

(i) **Toilet room** means a room maintained within or on the premises containing toilet facilities for use by employees.

(j) **Toxic material** means a material in concentration or amount of such toxicity as to constitute a recognized hazard that is causing or is likely to cause death or serious physical harm.

(k) **Urinal** means a toilet facility maintained within a toilet room for the sole purpose of urination.

(l) **Water closet** means a toilet facility maintained within a toilet room for the purpose of both defecation and urination and which is flushed with water.

(m) **Leq (8)** means the equivalent steady sound level which in 8 hours would contain the same acoustic energy as the time-varying sound level during the same time period.

2. **Housekeeping.**

(a) All camp cars should be kept clean to the extent that the nature of the work allows.

(b) To facilitate cleaning, every floor, working place, and passageway should be kept free from protruding nails, splinters, loose boards, and unnecessary holes and openings.

3. **Waste Disposal.**

(a) Any exterior receptacle used for putrescible solid or liquid waste or refuse should be so constructed that it does not leak and may be thoroughly cleaned and maintained in a sanitary condition. Such a receptacle should be equipped with a solid tight-fitting cover, unless it can be maintained in a sanitary condition without a cover. This requirement does not prohibit the use of receptacles designed to permit the maintenance of a sanitary condition without regard to the aforementioned requirements.

(b) All sweepings, solid or liquid wastes, refuse, and garbage should be removed in such a manner as to avoid creating a menace to health and as often as necessary or appropriate to maintain a sanitary condition.

4. **Vermin Control.**

(a) Camp cars should be so constructed, equipped, and maintained, so far as reasonably practicable, as to prevent the entrance or harborage of rodents, insects, or other vermin. A continuing and effective extermination program should be instituted.
where their presence is detected.

5. Water supply.

(a) **Potable water.** (1) Potable water should be adequately and conveniently provided to all employees in camp cars for drinking, washing of the person, cooking, washing of cooking or eating utensils, washing of food preparation or processing premises, and personal service rooms where such facilities are provided.

(2) Potable drinking water dispensers should be designed, constructed, and serviced so that sanitary conditions are maintained, should be capable of being closed, and should be equipped with a tap.

(3) Open containers such as barrels, pails, or tanks for drinking water from which the water must be dipped or poured, whether or not they are fitted with a cover, should not be used.

(4) A common drinking cup and other common utensils should not be used.

(b) The distribution lines should be capable of supplying water at sufficient operating pressures to all taps for normal simultaneous operation.

6. Toilet facilities.

(a) **Toilet facilities.** (1) Toilet facilities adequate for the number of employees housed in the camp car should be provided in convenient and safe location(s), and separate toilet rooms for each sex should be provided in accordance with table 1 of this paragraph. The number of facilities to be provided for each sex should be based on the number of employees of that sex for whom the facilities are furnished. Where toilet rooms will be occupied by no more than one person at a time, can be locked from the inside, and contain at least one water closet or nonwater carriage toilet facility, separate toilet rooms for each sex need not be provided. Where such single-occupancy rooms have more than one toilet facility, only one such facility in each toilet room should be counted for the purpose of Table 1.

<table>
<thead>
<tr>
<th>No. of employees</th>
<th>Minimum No. of toilet facilities$^{1/}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10...........</td>
<td>1</td>
</tr>
<tr>
<td>11 to 25...........</td>
<td>2</td>
</tr>
<tr>
<td>26 to 49...........</td>
<td>3</td>
</tr>
<tr>
<td>50 to 100...........</td>
<td>5</td>
</tr>
<tr>
<td>Over 100...........</td>
<td>2$^{2/}$</td>
</tr>
</tbody>
</table>

$^{1/}$Where toilet facilities will not be used by women, urinals may be provided instead of water closets or nonwater carriage toilet facilities, except that the number of water closets or facilities in such cases should not be reduced to less than 2/3 of the minimum specified.

$^{2/}$One additional fixture for each additional 25 employees.

(2) When toilet facilities are provided in separate cars, toilet rooms
should have a window space of not less than 6 square feet in area opening directly to the outside area or otherwise be satisfactorily ventilated. All outside openings should be screened with material that is equivalent to or better than 16-mesh. No fixture, water closet, nonwater carriage toilet facility or urinal should be located in a compartment used for other than toilet purposes.

(3) The sewage disposal method should not endanger the health of employees.

(b) Construction of toilet rooms. (1) Each water closet should occupy a separate compartment with a door and walls or partitions between fixtures sufficiently high to assure privacy.

(2) Nonwater carriage toilet facilities should be located within 50 feet, but as far as practical on the same side of the track on which camp cars are sited.

(3) Each toilet facility should be lighted naturally, or artificially by a safe type of lighting available at all hours of the day and night. Flashlights can be substituted by the railroad when nonwater carriage toilet facilities are used.

(4) An adequate supply of toilet paper should be provided in each water closet, or nonwater carriage toilet facility, unless provided to the employees individually.

(5) Toilet facilities should be kept in a clean and sanitary condition. They should be cleaned regularly when occupied. In the case of nonwater carriage toilet facilities, they should be cleaned and changed regularly.

7. Lavatories.

(a) Lavatories should be made available to all rail employees housed in camp cars.

(b) Each lavatory should be provided with either hot and cold running water or tepid running water.

(c) Unless otherwise provided by agreement, hand soap or similar cleansing agents should be provided.

(d) Unless otherwise provided by agreement, individual hand towels or sections thereof, of cloth or paper, warm air blowers or clean individual sections of continuous cloth toweling, convenient to the lavatories, should be provided.

(e) One lavatory basin per 6 employees should be provided in shared facilities.

8. Showering facilities.
(a) Showering facilities should be provided in the following ratio: one shower should be provided for each 10 employees of each sex, or numerical fraction thereof, who are required to shower during the same shift.

(b) Shower floors should be constructed of nonslippery materials. Floor drains should be provided in all shower baths and shower rooms to remove waste water and facilitate cleaning. All junctions of the curbing and the floor should be sealed. The walls and partitions of shower rooms should be smooth and impervious to the height of splash.

(c) An adequate supply of hot and cold running water should be provided for showering purposes. Facilities for heating water should be provided.

(d) **Showers.** 1. Unless otherwise provided by agreement, body soap or other appropriate cleansing agent convenient to the showers should be provided.

2. Showers should be provided with hot and cold water feeding a common discharge line.

3. Unless otherwise provided by agreement, employees who use showers should be provided with individual clean towels.

9. **Kitchens, dining hall and feeding facilities.**

   (a) In all camp cars where central dining operations are provided, the food handling facilities should be clean and sanitary.

   (b) When separate kitchen and dining hall cars are provided, there should be a closable door between the living or sleeping quarters into a kitchen or dining hall car.

10. **Consumption of food and beverages on the premises.**

    (a) **Application.** This paragraph should apply only where employees are permitted to consume food or beverages, or both, on the premises.

    (b) **Eating and drinking areas.** No employee should be allowed to consume food or beverages in a toilet room or in any area exposed to a toxic material.

    (c) **Sewage disposal facilities.** All sewer lines and floor drains from camp cars should be connected to public sewers where available and practical, unless the cars are equipped with holding tanks that are emptied in a sanitary manner.

    (d) **Waste disposal containers provided for the interior of camp cars.** An adequate number of receptacles constructed of smooth, corrosion resistant, easily cleanable, or disposable materials, should be provided and used for the disposal of
waste food. Receptacles should be provided with a solid tightfitting cover unless sanitary conditions can be maintained without use of a cover. The number, size and location of such receptacles should encourage their use and not result in overfilling. They should be emptied regularly and maintained in a clean and sanitary condition.

(e) **Sanitary storage.** No food or beverages should be stored in toilet rooms or in an area exposed to a toxic material.

(f) **Food handling.** (1) All employee food service facilities and operations should be carried out in accordance with sound hygienic principles. In all places of employment where all or part of the food service is provided, the food dispensed should be wholesome, free from spoilage, and should be processed, prepared, handled, and stored in such a manner as to be protected against contamination.

(2) No person with any disease communicable through contact with food or food preparation items should be employed or permitted to work in the preparation, cooking, serving, or other handling of food, foodstuffs, or materials used therein, in a kitchen or dining facility operated in or in connection with camp cars.

11. **Lighting.** Each habitable room in a camp car should be provided with adequate lighting.

12. **First Aid.** Adequate first aid kits should be maintained and made available for railway employees housed in camp cars for the emergency treatment of injured persons.

13. **Shelter.**

   (a) Every camp car should be constructed in a manner that will provide protection against the elements.

   (b) All steps, entry ways, passageways and corridors providing normal entry to or between camp cars should be constructed of durable weather resistant material and properly maintained. Any broken or unsafe fixtures or components in need of repair should be repaired or replaced promptly.

   (c) Each camp car used for sleeping purposes should contain at least 48 square feet of floor space for each occupant. At least a 7-foot ceiling measured at the entrance to the car should be provided.

   (d) Beds, cots, or bunks and suitable storage facilities such as wall lockers or space for foot lockers for clothing and personal articles should be provided in every room used for sleeping purposes. Except where partitions are provided, such beds or similar facilities should be spaced not closer than 36 inches laterally (except in modular units which cannot be spaced closer than 30 inches) and 30 inches end to end, and should be elevated at least 12 inches from the floor. If double-deck bunks are used,
they should be spaced not less than 48 inches both laterally and end to end. The
minimum clear space between the lower and upper bunk should be not less than 27
inches. Triple-deck bunks should not be used.

(e) Floors should be of smooth and tight construction and should be
kept in good repair.

(f) All living quarters should be provided with windows the total of
which should be not less than 10 percent of the floor area. At least one-half of each
window designed to be opened should be so constructed that it can be opened for
purposes of ventilation. Durable opaque window coverings should be provided to reduce
the entrance of light during sleeping hours.

(g) All exterior openings should be effectively screened with 16-mesh
material. All screen doors should be equipped with self-closing devices.

(h) In a facility where workers cook, live, and sleep, a minimum of 90
square feet per person should be provided. Sanitary facilities should be provided for
storing and preparing food.

(i) In camp cars where meals are provided, adequate facilities to feed
employees within a 60-minute period should be provided.

(j) All heating, cooking, ventilation, air conditioning and water
heating equipment should be installed in accordance with applicable local regulations
governing such installations.

(k) Every camp car should be provided with equipment capable of
maintaining a temperature of at least 68 degrees F. during normal cold weather and no
greater than 78 degrees F., or 20 degrees below ambient, whichever is warmer, during
normal hot weather.

14. **Location.** Camp cars occupied exclusively by individuals employed for
the purpose of maintaining the right-of-way of a railroad should be located as far as
practical from where "switching or humping operations" of "placarded cars" occur, as
defined in 49 C.F.R. § 228.101(c)(3) and (c)(4), respectively. Every reasonable effort
should be made to locate these camp cars at least one-half mile (2,640 feet) from where
such switching or humping occurs. In the event employees housed in camp cars located
closer than one-half mile (2,640 feet) from where such switching or humping of cars
takes place are exposed to an unusual hazard at such location, the employees involved
should be housed in other suitable accommodations. An unusual hazard means an unsafe
condition created by an occurrence other than normal switching or humping.

15. **General provisions.** (a) Sleeping quarters are not considered to be "free
of interruptions caused by noise under the control of the railroad" if noise levels
attributable to noise sources under the control of the railroad exceed a Leq (18) value of
55 dba, with windows closed and exclusive of cooling, heating, and ventilating
equipment.

(b) A railroad should, within 48 hours after notice of noncompliance with these recommendations, fix the deficient condition(s). Where holidays or weekends intervene, the railroad should fix the condition within 8 hours after the employees return to work. In the event such condition(s) affects the safety or health of the employees, such as water, cooling, heating or eating facilities, the railroad should provide alternative arrangements for housing and eating until the noncomplying condition is fixed.

Appendix C- Guidelines For Clean, safe, and Sanitary Camp Cars

49 U.S.C. § 21106
49 C.F.R. Part 228
DISQUALIFICATION OF EMPLOYEES

Service of Process

In general, service of process upon a party shall be either personally or by registered or certified mail. However, service of requests for admission and motions may be made by first-class mail. Service upon a person's duly authorized representative constitutes service upon the individual.

Requests for Admission

The procedures for obtaining requests for admission of facts, the genuineness of documents, and the application of law to facts is specifically set out. A party may serve upon any other party written requests for admission of the genuineness of any relevant documents identified, the truth of any relevant matters of fact, and the application of law to the facts as set forth in the requests. The requests do not involve the participation of the presiding officer unless the parties cannot resolve compliance issues that may arise. Sworn answers to the requests for admission or objections to them must be served within 30 days after receipt of the requests. Failure to answer or object within that time period will result in an admission of the matter requested. Objections to requests may be challenged by filing a motion to compel with the presiding officer. Any matter admitted under this section is conclusively established unless the presiding officer permits withdrawal or amendment of the admission for good cause shown.

Subpoenas

Subpoenas issued in disqualification proceedings may be issued only by the presiding officer, and only upon a showing that the information sought will materially advance the proceeding.

Depositions

Depositions may be taken only for good cause upon a motion filed with the presiding officer. "Good cause" exists when the information sought is relevant to the subject matter involved in the proceeding and (1) not obtainable from some other source that is more convenient, less burdensome, and less expensive, or (2) not unreasonably cumulative, unduly burdensome, or unduly expensive. The presiding officer, when granting a motion for deposition, must give 10 days' notice before the date of the deposition. All discovery, including depositions, must be completed within 90 days after the request for a hearing. An additional 30-day extension may be obtained upon clear and convincing evidence of the need.

Filing of Documents

All materials must be submitted in duplicate with the FRA's Assistant Chief Counsel for Safety in Washington, D. C., except that documents produced in accordance
with a subpoena shall be presented at the place and time specified by the subpoena.

Consolidation

The FRA's Chief Counsel may consolidate the individual matter with any similar ones pending against the same person or against other employees, if it is a related matter.

Rules of Evidence

The Federal Rules of Evidence for United States Courts and Magistrates shall be used as general guidelines for the proceedings. However, all relevant and material evidence shall be received into the record.

Motions

All motions shall be in writing, filed with the presiding officer and served upon all the parties, except oral motions made during the course of any hearings. Unless otherwise specified by the presiding officer, any objection to a written motion must be filed within 10 days after receipt of the motion.

Disqualification Procedures

Purpose And Scope

The regulation prescribes the rules for the proceedings relating to the determination of a person's fitness for performing safety-sensitive functions. It does not preempt a railroad from initiating disciplinary actions against an employee. Any decisions made under this regulation shall have no effect on any disciplinary actions taken against an employee by the railroads.

Coverage

The following individuals are covered by the rule:

(a) Railroad employees who are assigned to perform service subject to the Hours of Service Act whether or not the person has performed or is currently performing such service.

(b) Railroad employees or agents who: (1) inspect, install, repair, or maintain track and roadbed; (2) inspect, repair, or maintain, locomotives, passenger cars, and freight cars; (3) conduct training and testing of employees when the training or testing is required by the FRA's safety regulations; or

(c) Railroad managers, supervisors, or agents when they perform safety-sensitive functions listed above, or supervise and otherwise direct the performance of safety-sensitive functions listed above, or are in a position to
direct the commission of violations of any railroad safety regulations.

Notice Of Proposed Disqualification

(a) FRA, through the Chief Counsel, begins a disqualification proceeding by serving a notice of proposed disqualification on the employee charging him or her with having violated one or more rules, regulations, orders, or standards promulgated by FRA, which render the employee unfit to perform safety-sensitive functions.

(b) The notice of proposed disqualification issued under this section shall contain:

1. A statement of the rule(s), regulation(s), order(s), or standard(s) that the employee is alleged to have violated;

2. A statement of the factual allegations that form the basis of the initial determination that the employee is not fit to perform safety-sensitive functions;

3. A statement of the effective date, duration, and other conditions, if any, of the disqualification order;

4. A statement of the employee's right to answer the charges in writing and furnish affidavits and any other documentary evidence in support of the answer;

5. A statement of the employee's right to make an informal response to the Chief Counsel;

6. A statement of the employee's right to request a hearing and the procedures for requesting a hearing;

7. A statement of the employee's right to counsel or other designated representative; and

8. Notice of the consequences of the employee's failure to take any of the actions described in § 209.307(a).

(c) The Chief Counsel shall enclose with the notice of proposed disqualification a copy of the material that is relied on in support of the charges. Nothing in this section precludes the Chief Counsel from presenting at a subsequent hearing any evidence of the charges set forth in the notice that the Chief Counsel acquires after service on the employee. The Chief Counsel, however, shall serve a copy of any such evidence on the employee at or before the prehearing conference. Failure to furnish such evidence to employee at or before the prehearing conference bars its introduction at the hearing.
(d) The Chief Counsel shall provide a copy of the notice of proposed disqualification to the railroad that employs the employee.

**Reply**

Within 30 days after receipt of service of notice of proposed disqualification, the individual must reply in writing to the charges, and he or she may submit documentary evidence in support of the reply. In addition to submitting a written reply, the employee may make an informal response to the Chief Counsel or request an evidentiary hearing. The Chief Counsel may extend the reply period for good cause shown. Failure of the employee to reply in writing to a notice of disqualification will be treated as a waiver of the employee's right to contest the charges.

**Informal Response**

An individual who elects to make an informal response may submit information, as he or she may desire, to answer the charges. In addition, in the informal written response, the employee may request a conference with the Chief Counsel. Based upon the written response, the Chief Counsel could dismiss the charges or issue any other appropriate action. No order shall be issued unless the employee consents to the imposition of the disqualification and waives in writing his or her right to a hearing. If the parties are unable to reach a settlement within 30 days of service of the employee's reply upon the Chief Counsel, the Chief Counsel shall terminate the negotiations by serving the employee written notice of termination of settlement negotiations. The employee does not waive his right to a hearing by filing a written response to the charges and requesting a conference with the Chief Counsel. Within 10 days after the receipt of notice of termination of settlement negotiations, the individual may exercise the right to a hearing. Failure to request a hearing within the 10 days will constitute a waiver of the employee's right to such a hearing. The Chief Counsel may extend the time for requesting a hearing upon good cause shown.

**Request For A Hearing**

An employee who requests a hearing must do so within 30 days after receipt of the notice of proposed disqualification or, if the employee pursues an informal response, the hearing must be requested within 10 days after receipt of the notice of termination of settlement negotiations. The written request must be signed by the employee and include at a minimum the following information: name, address, and phone number of the individual and his or her representative, if any; a specific response to the charges, admitting, denying, or explaining each allegation contained in the notice of disqualification; and the description of the claims and defenses that the individual intends to raise at the hearing. A defense raised at the prehearing conference or the hearing, which was not identified in the employee's hearing request, will be subject to a motion to strike by the Chief Counsel. Absent compelling reasons, the motion will be granted. After notice of the proposed disqualification, no new charges may be added, nor may a more severe disqualification order be proposed. Upon receipt of a hearing request, the Chief Counsel shall arrange for the appointment of a presiding officer who will be an
administrative law judge. The Chief Counsel and the employee in a case pending before a presiding officer may agree to settle or dismiss a case without the approval of the presiding officer.

Discovery

Discovery may be obtained by request for admission, request for production of documentary, or other tangible evidence and deposition. Discovery is not permitted during an employee's informal response to the notice of proposed disqualification. Discovery must be completed within 90 days after the employee requests a hearing. Upon motion for good cause shown, a 30-day extension may be granted by the presiding officer. In an extremely rare situation, an additional 30-day extension may be granted when there is clear and convincing evidence that the party was unable to complete discovery within a 120-day time period. If a party fails to comply with a discovery order or an order to compel, the presiding officer may impose sanctions by: (1) striking any appropriate part of the pleadings; (2) prohibit the party failing to comply from introducing evidence relating to the information sought; (3) draw an inference in favor of the requesting party; and (4) permit the requesting party to introduce secondary evidence concerning the information sought. These sanctions are limited and will avoid complete dismissal of the case based solely on the Chief Counsel's failure to participate in discovery. Similarly, a disqualification order will not be issued based solely on an employee's failure to participate in discovery.

Subpoenas

Only the presiding officer may issue a subpoena.

Official Record

This specifies what is to be contained in the official record—i.e. notice of proposed disqualification, reply, exhibits, hearing transcript, pleadings, stipulations, admissions, rulings, and orders.

Prehearing Conference

A prehearing conference must be conducted within 150 days of the employee's request for a hearing under § 209.311. This provides an opportunity to simplify the issues, enter into stipulations, and exchange witness lists and exhibits that are approved by the presiding officer. It shall be conducted at least 10 days before the hearing.

Hearing

The presiding officer is required to begin the hearing within 180 days of the employee's request for a hearing, and give the parties at least 20 days' notice of the date of the hearing. The witnesses shall testify under oath and the hearing shall be open to the public. However, the presiding officer may close the hearing if it would be in the best interests to do so. The powers of the presiding officer are consistent with, and based
upon, the powers outlined in the Administrative Procedure Act. The FRA has the burden of proof, by a preponderance of the evidence, as to the facts alleged in the notice of proposed disqualification, the employee's unfitness, and the reasonableness of the terms of the proposed disqualification. When the Chief Counsel proves that an individual committed a willful violation of one of the regulations, the employee is presumed to be unfit. However, this presumption is rebuttable. This does not shift the Chief Counsel's burden of proof. It does, however, impose on the employee the burden of going forward with the evidence to rebut the presumption. The FRA considers a "willful act" to be one that is intentional, voluntary and committed either with knowledge of the relevant law, or with reckless disregard for whether the act violated the requirements of the law. The generally accepted definition of "preponderance of the evidence" is that degree of evidence which is more likely to be true than untrue. It should be kept in mind that even a person who obeyed an order to perform an act that violates a safety regulation, he or she could still be held unfit, if the employee did not protest the action to the supervisor who gave the order. Therefore, it is important for the employee to protest any order that he or she believes to violate a safety law or regulation.

Initial Decision

The order of the presiding officer is an initial decision. It shall contain findings of fact and conclusions of law and the reasons therefore, which shall be based upon the evidence and argument presented in the record, the terms and conditions of any disqualification order, the date the decision shall become final —35 days after issuance of the decision, unless an appeal is filed — and the party's appeal rights to the Administrator. The Chief Counsel shall provide a copy of the order to the employing railroad. The employee is also required to notify the employing railroad of the issuance of the order.

Finality Of The Decision

The initial decision shall become final 35 days after issuance, unless any party files an appeal. The timely filing of an appeal shall stay the order in the initial decision. Since an appeal of an initial decision is permissive, the initial decision, when final, is subject to judicial review in the United States District Court under 28 U.S.C. § 1331 and 5 U.S.C. §§ 701-706.

Appeal

An appeal under this regulation means that the employee must file a brief with the FRA Administrator, not merely a notice of appeal. Any party may file an appeal with the Administrator within 35 days of issuance of the initial decision. For good cause shown, an extension of the filing may be granted by the Administrator. The appeal must set forth objections to the initial decision, discuss applicable laws or regulations, and any evidence relied on in the record should be clearly identified. The opposing party may file a reply brief within 25 days of the service of the appeal. There is no right to oral argument on appeal. It may be permitted only if the Administrator finds that it is necessary to develop
the issues. Initial decisions that have been appealed to the Administrator and result in a
decision and order of the Administrator constitutes final agency orders and they are
subject to judicial review.

Assessment Considerations

This section establishes the rebuttable presumption that the employee is unfit to
perform safety-sensitive functions. In determining lack of fitness the factors to be
considered include, but are not limited to, the following:

(1) The nature and circumstances of the violation, including
whether the violation was intentional, technical, or inadvertent, was
committed willfully, or was frequently repeated;

(2) The adverse impact or the potentially adverse impact of the
violation on the health and safety of persons and the safety of property;

(3) The railroad's operating rules, safety rules, and repair and
maintenance standards;
(4) Repair and maintenance standards adopted by the industry;

(5) The consistency of the conditions of the proposed
disqualification with disqualification orders issued against other
employees for the same or similar violations;

(6) Whether the employee was on notice of any safety regulations
that were violated or whether the respondent had been warned about the
conduct in question;

(7) The employee's past record of committing violations of safety
regulations, including previous FRA warnings issued, disqualifications
imposed, civil penalties assessed, railroad disciplinary actions, and
criminal convictions therefor;

(8) The civil penalty scheduled for the violation of the safety
regulation in question;

(9) Mitigating circumstances surrounding the violation, such as
the existence of an emergency situation endangering persons or property
and the need for the employee to take immediate action; and

(10) Such other factors as may be warranted in the public interest.

Enforcement Of Disqualification Order

This imposes a requirement on an employee who is subject to a disqualification
order to disclose the order and provide a copy of it to his or her current employer or
prospective employer within 5 days after receipt of the order. Any person who violates this requirement may be subject to another disqualification proceeding in which FRA will seek to bar permanently the individual from performing safety-sensitive functions and, if the violation is willful, the individual may be assessed a civil penalty up to $10,000 per violation. Any railroad that is considering hiring an employee must inquire of the person's former employer as to whether he or she is presently subject to a disqualification order.

Prohibitions

An employee subject to a disqualification order shall not work for any railroad in any manner inconsistent with the order.

Penalties

An employee may be permanently disqualified from performing safety-sensitive functions, and if he or she willfully violates the order may be assessed a civil penalty of at least $1,000 and not more than $5,000. The railroad that violates the procedures under this regulation may be assessed a civil penalty of at least $5,000 and not more than $10,000 per violation. Each day of a violation constitutes a separate offense.

49 C.F.R. §§ 209.5-209.335 and Parts 229-231.
TAMPERING WITH SAFETY DEVICES

Any individual who willfully disables a safety device is liable for a civil penalty, as well as being subject to disqualification from performing safety-sensitive functions on a railroad. The penalty against an individual for willfully disabling is up to $7,500. If the employee willfully operates a locomotive with disabled equipment, the fine is up to $5,000.

A "safety device" is defined as any locomotive-mounted equipment that is used either to assure that the locomotive operator is alert, not physically incapacitated, aware of and complying with the indications of a signal system or other operational control system or to record data concerning the operation of that locomotive or the train it is powering.

The specific devices that are intended to be included by FRA are:

- event recorder
- alerters
- deadman controls
- automatic cab signals
- cab signal whistles
- automatic train stop equipment
- automatic train control equipment

(FRA does not consider the following equipment to be followed by the rule: radios, monitors for end of train devices, bells or whistles that are not connected to alerters, deadman pedals, signal system devices, fans for controlling interior temperature of locomotive cabs, and locomotive performance monitoring devices unless they record data such as train speed and airbrake operations).

If an alerter, deadman pedal, or event record becomes defective in route, it will be necessary to notify a designated person of that condition.

In summary, to assess a civil penalty, the FRA will need proof that the individual had intended to disable one of the above listed devices, had acted voluntarily, had in fact disabled the device, and either had knowledge of the law or had recklessly disregarded the law.

When a relief crew boards a moving locomotive while the preceding crew leaves the train, there is no requirement that the relief crew inspect the locomotive. In other words, this rule does not require any new inspections to be performed, but any existing regulations that require inspection must be complied with.

The railroads are strictly liable under this rule for the conduct of its employees when a train is operated with a disabled device. There is no requirement to prove willfulness against the railroad.

49 U.S.C. § 20138
49 C.F.R. §§ 218.51--.61
PENALTIES AGAINST INDIVIDUALS

When an Employee Will Be Liable

A railroad worker can be fined for a federal safety violation only if it is "willful." To be considered willful by FRA, the violation has to be one that is an intentional voluntary act committed either with knowledge of the relevant law or reckless disregard for whether the act violated the requirements of the law. It is not necessary to show evil intent nor actual knowledge of the law to prove a willful violation. Rather, it requires knowledge of the facts constituting the violation, but actual, subjective knowledge need not be demonstrated. It will be sufficient to show that the alleged violator must have known of the facts based on reasonable emphasis drawn from the circumstances. For example, a person shown to have been responsible for performing an initial terminal brake test that was not in fact performed would not be able to defend against a willful claim simply by stating ignorance of the fact that the test was not performed.

The employee has a right to protest a direct order by a supervisor to violate the law. Where such a protest is shown to have been communicated to the supervisor, the employee communicating it will have demonstrated lack of willfulness. This does not mean that a person who does not communicate such a protest will be deemed to have acted willfully. That will depend on the particular circumstances of the case.

The Procedures FRA Will Follow to Impose a Fine

1. When an FRA inspector discovers what he considers to be a violation by an employee, he will draft a violation report. This is essentially a recommendation to the Office of Chief Counsel to assess a penalty based upon the evidence in the report. The inspector will inform the employee in writing of his intent to seek assessment of a civil penalty and the fact that a violation report has been transmitted to the Office of Chief Counsel. This procedure will give the employee an opportunity to seek counsel, obtain documents, or take any other steps to aid in his or her defense.

2. Next, if the Office of Chief Counsel concludes that the case is meritorious it will issue a penalty demand letter. Such letter will summarize the claims, and enclose the violation report with a copy of all the evidence on which FRA is relying. The letter will make clear that FRA encourages discussions, through the mail, over the phone, or in person, of any defenses or mitigating factors the employer may wish to raise. That letter will also advise the employee that he or she may wish to obtain representation by an attorney and/or collective bargaining representative.

3. In the event that a compromise cannot be reached, FRA will send the individual a letter warning of its intention to request that the Attorney General sue for the initially proposed amount and giving the person 30 to 90 days to decide if the penalty shall be paid before the lawsuit commences.

The Amount of Penalties
The penalties which can be imposed by the FRA on an individual are between
$250 up to $10,000 per violations, except for a grossly negligent violation or pattern of repeated violations which creates an imminent hazard of death or injury (or has actually caused death or injury), a penalty of up to $20,000 per violation may be assessed. These penalties, under the safety statutes, are applicable to all except the Hours of Service Act violations. The Hours of Service Act penalty provision imposes a fine up to $1,000 per violation.

In addition, the FRA may suspend or disqualify an individual whose violations of the safety laws is shown to make that individual unfit for the performance of safety sensitive functions. It should be noted that this does not require a showing of willfulness, as does the imposition of fines. The FRA also may remove an employee under its powers in the Emergency Order provisions of the Federal Railroad Safety Act.

49 U.S.C. § 21301
GRADE CROSSING SIGNAL SYSTEM SAFETY REGULATIONS

Part 212

§ 212.231 Highway-rail grade crossing inspector

State inspectors would be authorized to enforce grade crossing system safety regulations.

§ 212.233 Apprentice Highway - Rail Grade Crossing Inspector

Applicants must meet minimum requirements prior to being enrolled in the inspector training program.

PART 234

This rule prescribes standards for reporting failures. Railroads are permitted to impose more stringent requirements.

§ 234.1 Scope

Railroads must take specific and timely action to protect the public and railroad employees from malfunctioning highway rail-grade crossing warning systems by adhering to the maintenance, inspection, and testing standards proposed in these regulations.

§ 234.5 Definitions:

“Activation failure” means the failure of an active highway-rail grade crossing warning system to indicate the approach of a train at least 20 seconds prior to the train’s arrival at the crossing, or to indicate the presence of a train occupying the crossing, unless the crossing is provided with an alternative means of active warning to highway users of approaching trains. A grade crossing signal system does not indicate the approach of a train within the meaning of this paragraph if--more than 50% of the flashing lights (not gate arm lights) on any approach lane to the crossing are not functioning as intended, or in the case of an approach lane for which two or more pairs of flashing lights are provided, there is not at least one flashing light pair operating as intended. Back lights on the far side of the crossing are not considered in making these determinations.

"Appropriately equipped flagger" -- person other than a train crew member who is equipped with a vest, shirt or jacket of a color appropriate for daytime flagging, such as orange, yellow, strong yellow green, or fluorescent versions of these colors or other highly visible colors. For nighttime flagging, similar outside garments shall be retroreflective. Acceptable hand signaling devices for daytime are STOP/SLOW paddles or red flags For nighttime flagging, a flashlight, lantern, or other lighted signal shall be used. Requirements to be appropriately equipped do not apply to
law enforcement officers and train crewmembers responding to an emergency situation.

"Credible report of system malfunction" -- specific information regarding a malfunction at an identified highway-rail grade crossing, supplied by an identified railroad employee, law enforcement officer, highway traffic official, or an employee of a public agency acting in an official capacity.

“Partial activation” means activation of a highway-rail grade crossing warning system indicating the approach of a train, however, the full intended warning is not provided due to one of the following conditions:

(1) at non-gated crossings equipped with one pair of lights designed to flash alternately, one of the two lights does not operate properly (and approaching motorists can not clearly see flashing back lights from the warning lights on the other side of the crossing);

(2) at gated crossings, the gate arm is not in a horizontal position; or

(3) at gated crossings, any portion of a gate arm is missing if that portion normally had a gate arm flashing light attached.

"Warning System Malfunction" -- an activation failure or a false activation of a highway-rail grade crossing warning system.

§ 234.6 Civil Penalties

Any person who willfully violates any requirement or causes the violation of any requirement is subject to a civil penalty of at least $500.00, but no more than $10,000. For gross negligence or a pattern of repeated violations, a penalty may be imposed up to $20,000 for each violation. The definition of "Person" includes a railroad, its employees, and manufacturers and lessors of railroad equipment and independent contractors. Appendix A to the rule sets out a schedule of penalties for each type of violation. It should be noted that FRA does not consider it a violation if the railroad, exercising due diligence, could not have prevented the condition because it was not within the railroad’s control.

§ 234.7 Accidents Involving Grade Crossing Signal Failure

Each railroad shall report to FRA every impact between on-track railroad equipment and any other moving vehicle involving activation failure. Notification shall be provided to the National Response Center within 24 hours of the occurrence. A complete accident report shall be filed thereafter with the FRA.

§ 234.9 Grade Crossing Signal System Failure Reports

Each railroad shall report to FRA within 15 days of each activation failure of a grade crossing warning system. A railroad shall also file a report for each false activation of a grade crossing warning system. The later requirement shall be submitted within 30 days after the false activation occurs. The requirement to file false activation reports expired on April 1, 1994.
SUBPART C. -- Response to Reports of Warning System Malfunction

§234.101 Employee Notification Rules

Each railroad shall issue rules requiring employees to report to a designated railroad person, by the quickest means available, any warning system malfunction.

§ 234.103 Timely Response to Report of Malfunction

Upon receipt of a credible report of a warning system malfunction, the railroad shall promptly investigate the report and determine the nature of the malfunction. Based upon the results of that investigation, the railroad is required to adjust, repair, or replace any faulty component without undue delay. Until this is completed, the railroad shall provide alternative means of warning highway traffic and railroad employees, as provided in §234.105-§234.107

A railroad may discontinue or dismantle the warning system if state law permits it.

§ 234.105 Activation Failure

A railroad must, upon receipt of a credible report of activation failure, promptly initiate efforts to warn highway users and railroad employees by doing the following:

(a) Prior to a train's approval at the crossing, the railroad must notify the train crew of the report of activation failure and notify any other railroads operating over the crossing.

(b) The railroad must notify the law enforcement authority having jurisdiction over the crossing, or the railroad police.

(c) Until an appropriately equipped flagger or law enforcement officer is stationed at the crossing to warn high way traffic of approaching trains, each train must stop before entering the crossing to permit a crew member to dismount to flag highway traffic to a stop.

If an appropriately equipped flagger provides warning for each direction of highway traffic, trains may proceed through the crossing at normal speed. Any ban on whistles by a local jurisdiction must be lifted during the period of malfunctioning. At least one uniformed law enforcement officer (including a railroad police officer) may provide the warning

If there is not an appropriately equipped flagger or law enforcement officer stationed at the crossing, trains may proceed with caution through the crossing at a speed not exceeding 15 miles per hour. Normal speed may be resumed after passing through the crossing.
If a warning system is manually activated, a train can proceed through the crossing at normal speed.

§ 234.106 Partial Activation

Where there is a partial activation which provides some warning of an approaching train, but at a level less than that designed for the system, the railroad shall promptly initiate efforts to warn highway users and railroad employees at the crossing in the same manner as required for false activation set out in § 234.107.

§ 234.107 False Activation

When there is a false activation, a railroad must take the same initial actions as it would take in case of activation failure. The only difference between this section and the previous one is that the railroad has the option of temporarily taking the warning system out of service until repairs are completed. The warning system may only be taken out of service if the railroad complies with the protection requirements for activation failure.

§ 234.109 Recordkeeping

Each railroad is required to keep the following information for each report of warning system malfunction: location of crossing; time and date of receipt of report of malfunction; actions taken by railroad prior to repair and reactivation of repaired system; and time and date of repair. The railroads must retain these records for at least one year and these records shall be made available to the FRA as provided in the Federal Railroad Safety Act.

SUBPART D --Maintenance, Inspection and Testing

This subpart D is not intended to apply to grade crossing warning systems on out-of-service track.

§ 234.201 Location of plans

Plans and other information required for the proper maintenance and testing of highway--rail grade crossing warning systems shall be available for use at each warning system location. Plans would be required to be legible and correct to protect against errors in circuitry connections.

§ 234.203 Design of control circuits on closed circuit principle

All control circuits that affect the safe operation of the grade crossing warning system shall be designed on a fail-safe principle.

§ 234.205 Operating characteristics of warning system apparatus

Operating characteristics of electromagnetic, electronic, or electrical apparatus of
each crossing warning system should include: specifications setting forth pick-up values, release values, working values, and condemning limits of these values for all electromagnetic, electronic, or electrical devices used in highway-rail grade crossing warning systems.

§ 234.207 Adjustment, repair, or replacement of component

When any essential component of the warning system fails to perform its intended function, the cause shall be determined and the faulty component shall be required or replaced without undue delay. Until the repair is made, action under §234.105 or §234.107 should be taken.

§ 234.209 Interference with normal functioning of system

The normal functioning of any system shall not be interfered with when testing or otherwise, without first taking measures to provide for the safety of highway traffic.

§ 234.211 Locking or warning system apparatus

All external housings of warning system apparatus shall be kept locked, sealed, or secured.

§ 234.213 Grounds

Each circuit which affects the proper functioning of the warning system shall be kept free of any ground or combination of grounds which will permit a flow of current equal to or in excess of 75 percent of the release value of any relay or electromagnetic device in the circuit.

§ 234.215 Standby battery and indicator or alarm

A standby battery source of power is required to ensure the warning system continues to function during any period of primary power interruption.

§ 234.217 Flashing light units

Each flashing light unit must be positioned and aligned in accordance with installation plans. Each unit shall be maintained to prevent dust and moisture from entering the interior of the unit. All light units shall flash alternately and the number of flashes per minute for each light shall be a minimum of 35 and a maximum of 65.

§ 234.219 Gate arm lights and light cable

Each gate arm light must be visible to approaching highway users and that lights and light wire be secured to the gate arm.

§ 234.221 Lamp voltage
Lamp voltage shall be maintained at no less that 85% of its prescribed rating.

§ 234.223 Gate arm

Each gate arm, when in the downward position, must extend across each lane of approaching highway traffic and be maintained in a condition sufficient to be clearly viewed by approaching motorists. Each gate arm must start its downward motion not less than three seconds after flashing lights begin to operate and assume the horizontal position in a minimum of five seconds before the arrival of any train at the crossing. At 4-quadrant gate installations these time requirements apply only to the gates closest to oncoming traffic.

§ 234.225 Activation of warning system

At least a 20 second minimum warning time is required prior to the grade crossing being occupied by rail traffic. The 20 second warning time requirement applies to normal through train operations rather than switching movements or train operations that require stopping short of the grade crossing.

§ 234.227 Train detection apparatus

The detection of a train or car is required when any part of a train detection circuit is occupied. When the presence of sand, rust, dirt, grease or other foreign matter is known to prevent effective shunting, appropriate action under §234.105 "Activation failure" must be taken.

§ 234.229 Shunting sensitivity

Each train detection circuit that controls a highway-rail grade crossing warning system must detect the presence of a shunt of 0.06 ohm resistance when the shunt is connected across the track rails of the circuit, including fouling sections of turnouts.

§ 234.231 Fouling wires

Each set of fouling wires located in a highway-rail grade crossing warning system train detection circuit is required to consist of at least two discrete conductors, and it is also required that each conductor be of sufficient conductivity and maintained in such a condition that the train detection apparatus is in such condition to ensure proper operation of the train detection apparatus when the circuit is shunted. The installation of a signal duplex wire with a single plug acting as fouling wires is prohibited, but may be continued in use until they require repair or replacement.

§ 234.233 Rail joints

Each rail joint located within the limits of a highway-rail grade crossing train detection circuit must be bonded to ensure electrical conductivity by a means other
than joint bars, and the bonds shall be maintained to ensure electrical conductivity.

§ 234.235 Insulated rail joints

Each insulated rail joint used to separate train detection circuits of a highway-rail grade crossing must be maintained in a condition to prevent current from flowing between rails separated by the insulation in an amount sufficient to cause a failure of the train detection circuit.

§ 234.237 Switch equipped with circuit controller

When a switch equipped with a switch circuit controller connected to the point is interconnected with highway-rail grade crossing warning system circuitry, it shall be maintained so that the warning system can be cut out only when the point is within one-half inch of full reverse position.

§ 234.239 Tagging of wires and interference of wires or tags with signal apparatus.

Each wire must be tagged or otherwise marked so that it can be identified at each terminal in all housings, including switch circuit controllers and terminal or junction boxes. This section does not apply to flashing light units, gate arm light units and other auxiliary light units. Also, local wiring on a solid state crossing controller rack will not require tags if the wiring is an integral part of the solid state equipment.

§ 234.241 Protection of insulated wire; splice in underground wire

Insulated wire is to be protected from mechanical injury.

§ 234.243 Wire on pole line and aerial cable

Wire on a pole line must be securely tied in on an insulator and properly fastened to a crossarm or bracket supported by a pole or other support.

The wire shall not be interfered with. Aerial cable is required to be supported by messenger wire. Open-wire transmission line operating at 750 volts or more shall not be placed less than 4 feet above the nearest cross arm carrying active warning circuits.

§ 234.245 Signs

Each sign mounted on a highway-rail grade crossing signal post must be maintained in good condition and visible to the highway user.

Inspections and Tests

§ 234.247 Purpose of inspections and tests; removal from service of relay or device failing to meet test requirements.
Inspections and tests under §§234.249 through 234.271 shall be made to
determine if the warning system is maintained. Any electronic device, relay, or other
electromagnetic device that fails to meet the requirements shall be removed from service.
A full inspection and tests of all required components must be successful completed
before operations resume.

§ 234.249   Ground Tests

A test for grounds on each energy bus furnishing power to circuits that affect the
safety of warning system operation shall be made when an energy bus is placed in
service, and at least once a month thereafter.

§ 234.251   Battery Voltage

Standby power shall be tested at least once each month.

§ 234.253   Flashing light units and lamp voltage

Each flashing light unit must be tested when installed, and at least once every
twelve months each flashing light unit is required to be inspected for alinement and
frequency of flashes in accordance with installation specifications. At least once a month
each flashing unit will be required to be inspected for dust and damage to roundels to
ensure visibility of the light unit.

§ 234.255   Gate arm and gate mechanism

Each gate arm and gate mechanism must be inspected, and gate arm movement be
observed for proper operation, at least once each month. Test of hold-clear devices shall
be required at least once every twelve months.

§ 234.257   Warning system operation

A highway-rail grade crossing warning system must be tested for proper operation
when the warning system is placed in service. Thereafter whenever modified or
disarranged it should be tested at least once each month.

§ 234.259   Warning Time

A highway-rail grade crossing warning system must be tested for
prescribed warning time at least once every year, and when the warning system is
modified because of change in train speeds, electronic devices may be used for the
testing.

§ 234.261   Highway traffic signal preemption

Highway traffic signal preemption interconnectors, for which a railroad has
maintenance responsibility, shall be tested at least once each month.

§ 234.263  Relays

Each relay that affects the proper functioning of a crossing warning system shall be tested at least once every four years. Alternating current vane type relays, direct polar type relays, relays with soft iron magnetic structure shall be tested at least every 2 years. Alternating current centrifugal type relays shall be tested at least once every 12 months. Testing of relays requiring testing on four year intervals shall be completed in accordance with the following schedule:

(1) Not less than 50% by the end of calendar year 1996;
(2) Not less than a total of 75% by the end of calendar year 1997; and
(3) One hundred percent by the end of calendar year 1998.

Testing of relays requiring testing on two year intervals shall be completed by the end of calendar year 1996.

§ 234.265  Timing relays and timing devices

Each timing relay and timing devices must be tested at least once every twelve months. The timing would be required to be maintained at not less than 90% nor 110% of the predetermined time interval, which shall be shown on the plans or marked on the timing relay or timing device. Internal timing devices associated with motion detectors, motion sensors, and grade crossing predictors are not subject to the requirements of this section.

§ 234.267  Insulation resistance tests, wires in trunking and cables

(a) Insulation resistance test shall be made when wires or cables are installed and at least once every ten years thereafter.

(b) Insulation resistance tests must be made between all conductors and ground between conductors in each multiple conductor cable, and between conductors in trunking. These tests must be performed when wires, cables, and insulation are dry.

(c) When insulation resistance of wire or cable is found to be less than 500,000 ohms, prompt action is required to repair or replace the defective wire or cable.

(d) A circuit with a conductor having an insulation resistance of less than 200,000 ohms shall not be used.

(e) Required insulation resistance testing that does not conform the required testing schedule of this section shall be completed in accordance with the following schedule:
(1) Not less than 50% by the end of the calendar year 1996;

(2) Not less than a total of 75% by the end of calendar year 1997; and

(3) One hundred percent by the end of calendar year 1998.

Section 234.269 Cut-out circuits

Each cut-out circuit shall be tested at least once every three months to determine that the circuit functions as intended. This type of circuit includes both switch cut-out circuits and devices which enables personnel to manually override the operation of automatic warning systems.

Section 234.271 Insulated rail joints, bond wires, and track connections

Each insulated rail joint, bond wire, and track connection located within the limits of a highway-rail grade crossing train detection circuit must be inspected at least once every three months.

Section 234.273 Results of tests and Inspections

Results of tests made in compliance with this part must be recorded on preprinted or computerized forms by the railroad, or by electronic means, approved by the Associate Administrator for Safety. The records shall be made available to FRA and be kept at least one year from the date of the test.

49 U.S.C. § 20134
49 C.F.R. Parts 212 and 234
SIGNAL RULES\footnote{Because of the complexity of the signal rules, each section of the federal regulation is summarized.}

Part 233 — Signal System Reporting Requirements

\textbf{49 C.F.R. § 233.1} \textbf{Scope.}

This section identifies the systems, methods, and appliances that are subject to the reporting requirements.

\textbf{§ 233.3} \textbf{Application.}

This section makes this part applicable to each railroad subject to the Signal Inspection Act, 49 U.S.C. § 26.

It does not apply to rapid transit system or privately-owned system not transporting interstate commerce.

Also, it does not apply to automatic classification yards or to rail/highway grade crossing warning devices.

\textbf{§ 233.5} \textbf{Application resulting from signal failure.}

This section requires each carrier to report by toll-free telephone number 800-424-0201 within 24-hours of each accident/incident resulting from a false proceed signal indication or failure.

\textbf{§ 233.7} \textbf{Signal failure reports.}

This section requires each carrier to report within 15 days each false proceed signal indication or failure.

\textbf{§ 233.9} \textbf{Report.}

This section requires each carrier to file a signal systems report every five years.

\textbf{§ 233.11} \textbf{Civil penalty.}

Any person (including a railroad and any manager, supervisor, official, or other employee or agent of a railroad) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of $2,500, except that: Penalties may be assessed against individuals only for willful violations, and where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or
injury to persons, or has caused death or injury, a penalty not to exceed $20,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. (See 49 C.F.R. Part 209, Appendix A).

§ 233.13 Criminal penalty.

Whoever knowingly and willfully—
(a) Makes, causes to be made, or participates in the making of a false entry in reports required to be filed by this part; or

(b) Files a false report or other document required to be filed by this part is subject to a $5,000 fine and 2 years imprisonment as prescribed by 49 U.S.C. § 522(a) and section 209(e) of the Federal Railroad Safety Act of 1970, as amended (45 U.S.C. § 438(3)).

Part 235 — Instructions Governing Applications For Approval Of Discontinuance Or Material Modification Of A Signal System Or Relief From The Requirements Of Part 236

§ 235.1 Scope.

This section identifies those changes in S&TC systems, methods, and appliances that require FRA approval, those that are exempt from approval, and provides for relief from the RS&I regulations.

This section is applicable to all block signal systems, interlockings, traffic control systems, automatic train stop, train control, or cab signal systems or other similar appliances, methods or systems.

§ 235.3 Application.

This section makes this part applicable to each railroad subject to the Signal Inspection Act, 49 U.S.C. § 26.

It does not apply to rapid transit systems or privately-owned systems not transporting interstate commerce.

§ 235.5 Changes requiring filing of application.

This section prescribes application for approval of discontinuance, decrease of limits of a system, or material modification, except as exempted in § 235.7.

§ 235.7 Changes not requiring filing of application.

This section lists each change which is not considered to be a discontinuance, decrease of limits, or material modification, and, therefore, does not require FRA approval.
§ 235.8 Relief from the requirements of Part 236.

This section provides for relief from any requirement contained in the RS&I.

§ 235.9 Civil penalty.

Any person (including a railroad and any manager, supervisor, official, or other employee or agent of a railroad) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of $2,500 except that: Penalties may be assessed against individuals only for willful violations, and where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed $20,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. See 49 C.F.R. Part 209 Appendix A.

§ 235.10 Contents of applications

This sets forth what information must be contained in an application.

§ 235.12 Additional required information—prints.

These sections set forth the information that is required when submitting an application. They itemize the information that is required on block signal applications and applications for relief from the RS&I.

§ 235.13 Filing procedure.

This section sets forth the procedure for filing a block signal application.

§ 235.14 Notice.

This section provides for the posting of a public notice in connection with the filing of each application or request for reconsideration.

§ 235.20 Protests.

This prescribes the method and procedure for filing a protest against granting a block signal application or an application for relief from the requirements of the RS&I.
Part 236 — Rules, Standards and Instructions Governing The Installation, Inspection, Maintenance And Repair Of Systems, Devices, And Appliances.

§ 236.0 Applicability of this Part.

This rule requires that a block signal system comply with the RS&I, or a manual block system complying with the provisions of this section, be installed where passenger trains operate at 60 or more miles per hour or freight trains operate at 50 or more miles per hour. Further, an automatic train stop, train control, or cab signal system shall be installed where any train operates at 80 or more miles per hour.

This section details how a manual block system shall operate and requires that it be permanently in effect, i.e., all trains must be operated by manual block system rules.

Where any train is operated at a speed of 80 or more miles per hour, an automatic cab signal, automatic train stop, or automatic train control system shall be installed.

Nothing in this section authorizes the discontinuance of a block signal system, interlocking, traffic control system, automatic train stop, train control, or cab signal system without the approval of the FRA.

Subpart A — Rules and Instructions All Systems. General

§ 236.1 Plans, where kept.

Plans shall be kept for the installation, inspection, maintenance, and repair of signal systems and are required to be correct and legible. This rule specifies where the plans are required to be kept.

§ 236.2 Grounds.

Vital circuits shall be kept free of grounds equal to or in excess of 75% of the release value of relay or electromagnetic device in circuits. Track circuits, common return wires of single-wire, single-break signal control circuits grounded by design, and alternating current power distribution circuits grounded in the interest of safety are excluded.

§ 236.3 Locking of signal apparatus housing.

Housings of all signal apparatus shall be secured to prevent unauthorized entry.

§ 236.4 Interference with normal functioning of device.

Safety of train operation must be provided before interfering with the normal
functioning of any device.

The intent of this rule is to insure carriers maintain the integrity of signal systems by prohibiting procedures or practices which defeat or nullify the minimum requirements of the RS&I.

§ 236.5 Design of control circuits on closed circuit principle.

This rule requires that control circuits which affect the safety of train operation be designed on the closed circuit principle.

It excludes circuits for roadway equipment of intermittent automatic train-stop system, normally open track circuits used to energize signal lamps when occupied, and fouling circuits.

§ 236.6 Hand-operated switch equipped with switch circuit controller.

Hand-operated switch equipped with switch circuit controller connected to the point, or with facing-point lock and circuit controller, must be maintained to open or shunt, or both, track circuits or control circuits, when point is open 1/4 inch or more on facing-point switch and 3/8 inch or more on trailing-point switch. Circuit controllers, facing-point locks, and switch-and-lock movements, and their connections must be securely fastened in place. When open, contacts must be maintained with an opening of at least 1/16th inch.

This rule does not apply to power-operated switches, spring switches, or electric locks on hand-operated switches.

§ 236.7 Circuit controller operated by switch-and-lock movement.

Circuit controller operated by switch-and-lock movement is required to be maintained so that normally open contacts will remain closed and normally closed contacts will remain open until switch is locked.

§ 236.8 Operating characteristics of electromagnetic, electronic, or electrical apparatus.

Operating characteristics of electromagnetic, electronic, or electrical apparatus in service shall be in accordance with the limits within which it is designed to operate.

Sections 236.101, .102, .105, .106, .107, .108, .109, .551, .552, .588, and .589 address those devices so important to safety of train operation that periodic tests are required to ascertain that operating characteristics remain unchanged.
§ 236.9 Selection of circuits through indicating or annunciating instruments.

Signal control and electric locking circuits shall not be selected through contacts of instruments designed for indicating or annunciating purposes in which an indicating element attached to the armature could in itself cause improper operation of the armature.

§ 236.10 Electric locks, force drop type; where required.

This rule requires that electric locks applied to new installations and new electric locks applied to existing installations be of the forced-drop type.

§ 236.11 Adjustment, repair, or replacement of component.

This requires a carrier to determine the cause when any component of a signal system essential to the safety of train operation fails to perform its intended function or is not in correspondence with known operating conditions. Faulty components must then be adjusted, repaired or replaced without undue delay.

§ 236.12 Spring switch signal protection; where required.

This rule prescribes signal protection for spring switches in interlockings; and for spring switches installed after October 1, 1950, in automatic block signal, train stop, train control or cab signal territory where movements over the switch exceed 20 miles per hour.

This rule prescribes where spring switch protection is required. Sections 236.13 and 236.14 prescribe how it will operate.

§ 236.13 Spring switch; selection of signal control circuits through circuit controller.

This rule requires that control circuits of signals governing facing movements over a main track spring switch be selected through the switch circuit controller or a relay repeating the position of such circuit controller.

This rule applies only to automatic block signal and other protective systems. Sections 236.303 and 236.342 apply to spring switches in interlocking and traffic control systems.

§ 236.14 Spring switch signal protecting; requirements.

This rule prescribes signal indications for movements through spring switches in automatic block signal territory, including: (1) movement from siding to main track with the current of traffic on track signaled for movements in one direction; (2) movement against the current of traffic from the reverse main to a single track; (3) movement from a
siding to a main track signaled for movements in either direction. Switch indications may be less restrictive where approach or time locking are used.

§ 236.15 Timetable instructions.

This rule requires automatic block, traffic control, train stop, train control, and cab signal territory be designated in timetable instructions.

It may be published in either timetable or special instructions in any manner carrier chooses. Interlockings are not required to be so designated.

§ 236.16 Electric lock, main track releasing circuit.

This rule sets forth the requirements for main track releasing circuit for electric lock on hand-operated switch.

It prohibits the electric lock releasing circuit on the main track from being of such length that distance or curvature of track will prevent a crew member standing at the switch from observing a train or car occupying the releasing circuit.

This section also requires that where the electric lock releasing circuit extends into the fouling section of turnout, train shall be prevented from occupying the fouling section by pipe-connected or independently operated, electrically locked derail at the clearance point. The releasing circuit shall be considered as extending into the fouling section if it extends further than the heel of the switch points.

§ 236.17 Pipe for operating connections; requirements.

This section prescribes steel or wrought-iron pipe 1 inch or larger for operating connections of pipe-connected appliances, with each joint fully screwed into coupling with each end of pipe secured by two rivets. Pipe shall be supported on carriers not more than 8 feet apart on tangent and curves of less than 2 degrees and not more than 7 feet apart on curves of more than 2 degrees. Pipeline shall be properly aligned and compensated and couplings shall not foul carriers. Up-and-down rods of mechanically operated signals may be 3/4 inch pipe or solid rod.

Roadway Signals and Cab Signals

§ 236.21 Location of roadway signals.

This requires that a roadway signal be positioned and aligned so that it is clearly associated with track it governs.

§ 236.22 Semaphore signal arm; clearance to other objects.

This rule requires 1/2 inch clearance between a semaphore arm and any object which may interfere with its operation.
§ 236.23 Aspects and indications.

This section prescribes how aspects shall be shown by signals and the authorized methods of qualifying aspects. It requires the use of lights for night aspects and prohibits the use of reflector lenses or other devices which depend on reflected light for visibility. It also establishes requirements for cab signal aspects. It prescribes that each aspect be identified by a name and specification of the action to be taken. Requires aspects to conform to the fundamental indications of stop, restricted speed and proceed. Information on aspects and indications shall be defined in the carrier's operating rule books or special instructions. Conditions such as lamp failure or false restrictive position of semaphore arm shall not cause display of a less restrictive aspect.

§ 236.24 Spacing of roadway signals.

This rule requires signals to be adequately spaced to provide proper distances for reducing speeds or stopping by use of other than an emergency brake application before reaching the point where reduced speed or stopping is required.

Carrier's braking distance charts shall be used to determine proper spacing. In event a carrier does not have a braking distance chart, braking tests may be required at suspected locations.

§ 236.26 Buffing device, maintenance.

This rule requires that buffing device be so maintained that it cannot cause a signal to display a less restrictive aspect than intended.

Operational test should be made to observe that oil or air buffers operate properly.

In the event the buffing device causes a signal to display a less restrictive aspect than intended, a false proceed report shall be filed with the FRA.

Track Circuits

§ 236.51 Track circuit requirements.

This rules establishes the standards for operation of track relays controlling home signals and track circuits of automatic train stop, train control or cab signal systems. It does not apply to circuits such as approach lighting circuits on non-signaled sidings or annunciator circuits. Prohibits use of shunt fouling circuits in turnouts where permissible speed is greater than 45 mph.

Track relay shall be in deenergized position or device that functions as a track relay shall be in its most restrictive state when a rail is broken, when a rail or switch frog is removed, when a train, locomotive or car occupies any part of a track circuit, including fouling sections, and, where switch shunting is used, when switch is not locked, or
independently operated derail is not in derailing position. Provides that when sand, rust, dirt, grease or other foreign matter prevents effective shunting, carrier is required to take adequate measures to safeguard safety of train operation.

§ 236.52 Relayed cut-section.

This requires that where energy of noncoded direct current track circuit is supplied through contacts of track relay at a cut-section, the energy circuit shall be opened and adjoining track circuit shunted when track relay is deenergized.

§ 236.53 Track circuit feed at grade crossing.

At crossing-at-grade of a nonelectrified railroad using noncoded direct-current track circuits with electrified railroad, this requires the battery end of direct-current track circuit be located at the crossing. This section is not applicable unless foreign current is proven to be present.

§ 236.54 Minimum length of track circuit.

This section requires the use of other circuits or devices to provide equivalent protection when a track circuit used for signal control is shorter than inner wheelbase of any car or locomotive operating over the track.

§ 236.55 Dead section; maximum length.

This section prohibits the use of dead section longer than the shortest outer wheelbase of a carrier's locomotive, but in no case longer than 35 feet without protecting it with a special circuit.

§ 236.56 Shunting sensitivity.

This section requires that track circuit controlling signal aspects or electric locking shall be maintained so that where a shunt of 0.06 ohm resistance is connected across the rails of the track circuit at any location in the circuit, including shunt fouling section, the track relay shall assume the deenergized position, or if an electronic device is used in lieu of a track relay, such electronic device shall assume its most restrictive state.

§ 236.57 Shunting and fouling wires.

Shunt wires and fouling wires are each required to be of sufficient conductivity and maintained in such condition that the track relay will be deenergized when the track circuit is shunted. Two completely separate conductors are required, except where switch circuit controller is used to both open control circuits and shunt the track circuit.

§ 236.58 Turnout, fouling section.

This rule requires that fouling section of each turnout shall extend to a point on
the turnout where a standing car or engine will clear a movement on the main track under all circumstances. It also requires that each rail joint in the fouling section be bonded.

§ 236.59 Insulated rail Joints.

Insulated rail joints shall be maintained in condition to prevent sufficient track circuit current from flowing between the rails separated by the insulation to cause a failure of any track circuit involved.

§ 236.60 Switch shunting circuit, use restricted.

This rule prohibits the installation of switch shunting circuit except where track or control circuit is also opened through the switch circuit controller.

Wires and Cable

§ 236.71 Signal wires on pole line and aerial cable.

Signal wires carried on pole lines are required to be securely fastened to insulators. Cable used aerially is required to be supported by messenger.

The intent of this rule is that all signal wires including A.C. power supply carried on pole line are required to be tied in on insulators that are securely fastened to a crossarm or bracket attached to a pole. Signal wire is required to be maintained clear of all other wires.

§ 236.73 Open-wire transmission line; clearance to other circuits.

Open-wire transmission lines of 750 volts or more shall be placed at least 4 feet above the nearest crossarm carrying signal or communication wires.

§ 236.74 Protection of insulated wire; splice in underground wire.

Insulated wire shall be protected from mechanical injury. This prohibits puncturing insulation for test purposes and requires that splice in underground wire have insulation resistance at least equal that of the wire spliced.

§ 236.76 Tagging of wires and interference of wires or tags with signal apparatus.

Each wire is required to be tagged or otherwise marked so it can be identified at each terminal. Tags or other marks of identification are required to be made of insulating material and wires and tags are prohibited from interfering with moving parts of signal apparatus.

Inspections and Tests: All Systems

§ 236.101 Purpose of inspections and tests; removal from service of relay
failing to meet test requirements.

This section prescribes certain inspections and tests of vital importance be made. The inspections and tests must be performed in accordance with carrier specifications which are subject to FRA approval. The purpose of inspections and tests is to determine if operating characteristics of relays and electromagnetic devices are within specified values and that apparatus and equipment is being maintained in condition to assure safety of train operation. Electronic device, relay or other electromagnetic device which fails to meet requirement of specified tests must be removed from service and not restored to service until its operating characteristics are within proper limits.

§ 236.102 Semaphore or searchlight signal mechanism.

This requires inspection of semaphore signal mechanism at least once every 6 months. Tests of the operating characteristics are required to be made every 2 years. Searchlight signal mechanism shall be inspected, and the mechanical movement shall be observed while operating the mechanism to all positions, at least once every 6 months. Tests of the operating characteristics shall be made at least once every 2 years.

§ 236.103 Switch circuit controller or point detector.

Switch circuit controllers and point detectors are required to be inspected and tested at least once every 3 months.

Applies to all switch circuit controllers and point detectors in all systems required by §§ 236.6, 236.13, 236.51, 236.57, 236.202, 236.203, 236.334 and 236.342.

§ 236.104 Shunt fouling circuit.

Shunt fouling circuit is required to be inspected and tested at least once every 3 months.

Inspection should determine bonds and fouling wires are applied in compliance with §§ 236.51, 236.56, 236.57 and 236.58 at the proper places, intact and in good condition.

§ 236.105 Electric lock.

This rule requires that electric locks be tested once every 2 years. It excludes forced drop type electric locks.

§ 236.106 Relays.

Each relay used in vital circuits of wayside equipment shall be tested at intervals prescribed for its type of design.
Each relay, the functioning of which affects the safety of train operations, shall be tested at least once every 4 years, except:

(a) Alternating current centrifugal type relay shall be tested at least once every 12 months;

(b) Alternating current vane type relay and direct current polar type relay shall be tested at least once every 2 years; and

(c) Relay with soft iron magnetic structure shall be tested at least once every 2 years.

§ 236.107 Ground tests.

This rule requires a test for grounds on energy bus supplying power to circuits which affect the safety of train operation. Test is required when the energy bus is placed in service and at least once every three months thereafter.

The provisions of this rule shall not apply to track circuit wires, common return wires of grounded common single-break circuits, or alternating current power distribution circuits grounded in interest of safety.

§ 236.108 Insulation resistance tests, wires in trunking and cable.

Tests of insulation resistance of wires and cable, including resistance between conductors in multiple conductor cable and in trunking, shall be made when installed and at least once every 10 years thereafter. Tests must be made when wires, cable and insulation are dry, however, wet conditions do not provide relief from Section 236.2. Requires prompt action to replace or repair cable or wire found to have less than 500,000 ohms insulation resistance and annual tests until repairs are made. Cable or wire found to have less than 200,000 ohms insulation resistance shall be removed from use of signal circuits.

§ 236.109 Time releases, timing relays and timing devices.

This test requires that time releases and time relays be tested once every 12 months, and that timing be maintained at not less than 90% of the predetermined time interval, which shall be shown on the plans or marked on the time release or relay.

§ 236.110 Results of tests.

This rule requires that the results of vital tests be recorded and filed in the office of the responsible supervisory official having jurisdiction. It specifies those results to be recorded, prescribes the general format to be used and requires that the recording be made by the employee who makes the test.

Whenever there is a test of an automatic train stop, train control, or cab signal apparatus, the person performing such test shall record the results on preprinted or computerized forms provided by the railroad. Such forms shall show the name of the...
railroad, place and date, equipment tested, results of tests, repairs, replacements, adjustments made, and condition in which the apparatus was left. Each record shall be signed by the employee making the test and shall be filed in the office of a supervisory official having jurisdiction. Results of these tests shall be retained until the next record is filed but not less than 1 year.

Subpart B — Automatic Block Signal Systems

Standards

§ 236.201 Track-circuit control of signals.

This rule requires that aspects of signals with indications more favorable than "Proceed at Restricted Speed" be controlled automatically by track circuits extending through the entire block. It applies to automatic block and traffic control systems.

§ 236.202 Signal governing movements over hand-operated switch.

Signal governing movements over hand-operated switch in the facing direction shall display its most restrictive aspect when the points are open 1/4 inch or more, in the trailing direction, 3/8 inch or more, except that where a separate aspect is displayed for facing movements over the switch in the normal and in the reverse position, the signal shall display its most restrictive aspect when the switch points are open 1/4 inch or more from either the normal or reverse position.

§ 236.203 Hand-operated crossover between main tracks; protection.

This section requires that hand-operated crossover between main tracks provide protection for train movements by either an arrangement of one or more track circuits and switch circuit controllers; facing-point locks on both switches operated from a single lever; or, by electric locking of both switches of the crossover.

Signals governing movements over either switch must display their most restrictive aspect when either switch is not in proper position, the crossover is occupied by a train, locomotive, or car; where facing-point locks are used and either switch is unlocked; and, where electric locks are used, before the electric locking releases. Relief is provided for certain conditions adverse to shunting.

§ 236.204 Track signaled for movements in both directions, requirements.

This rule requires that on track signaled for movements in both directions a train shall cause one or more opposing signal ahead of it to display the most restrictive aspect. Signals are required to be spaced or arranged to provide stopping distance for opposing trains.

In absolute permissive block signaling when a train passes a head block signal it must cause the opposing head block signal to display an aspect not more favorable than
§ 236.205 Signal control circuits; requirements.

Control circuits are required to be installed so that each signal will display its most restrictive aspect when the block it governs is occupied by a train, locomotive, or car; a switch is not in proper position; an independently operated derail equipped with switch circuit controller is not in derailing position; when a track relay is in deenergized position or device that functions as a track relay is in its most restrictive state; or when a signal control circuit is deenergized. It applies to both automatic block signal and traffic control systems.

§ 236.206 Battery or power supply with respect to relay; location.

Battery or power supply for each signal control relay circuit, either open-wire circuit or common return circuit, shall be located at the end of the circuit farthest from the relay.

§ 236.207 Electric lock on hand-operated switch; control.

Electric lock on hand-operated switch is prohibited from being unlocked before control circuits of signals governing movement over switch are opened. Approach or time locking must be provided. This is applicable only to automatic block signal systems.

There are no requirements for the installation of electric locks in automatic block signal territory. However, if installed, such electric lock must comply with this rule.

Subpart C — Interlocking Standards

§ 236.301 Where signals shall be provided.

This section requires that a signal be provided to govern train movements into and through interlocking limits except over electrically locked hand-operated switch with either a pipe-connected derail or independently-operated electrically locked derail. This rule applies to interlocking only. It does not apply to controlled points in traffic control systems.

Electric locks installed under this rule must conform to requirements of §§ 236 314, (without reference to the 20-mile exceptions) 236.760, 236.768 without regard to speed.

§ 236.302 Track circuits and route locking.

Track circuits and route locking shall be provided and shall be effective when the first pair of wheels of a locomotive or a car passes a point not more than 13 feet in
advance of the signal governing its movement, measured from the center of the mast, or if there is no mast, from the center of the signal.

§ 236.303 Control circuits for signals, selection through circuit controller operated by switch points or by switch locking mechanism.

This section requires control circuits of signal aspect with indications more favorable than proceed at restricted speed be selected through circuit controller or relay operated by circuit controller of each switch, movable point frog, or derail in the route governed. It requires each switch, movable point frog, or derail to be in proper position before such signal aspect can be displayed.

It applies to both interlocking and traffic control systems. This rule is not applicable to control circuits of aspects indicating "proceed at restricted speed."

§ 236.304 Mechanical locking or same protection effected by circuits.

Each interlocking is required to be so arranged either mechanically and/or electrically so that operation of controlling devices or apparatus must succeed each other in proper sequence before a proceed aspect can be displayed.

§ 236.305 Approach or time locking.

This section requires approach or time locking be provided in connection with signals displaying aspects with indications more favorable than proceed at restricted speed.

§ 236.306 Facing point lock or switch-and-lock movement.

Facing point lock or switch and lock movement is required for mechanically-operated switch, movable point frog or split point derail.

§ 236.307 Indication locking.

This section requires indication locking for operative approach signals of the semaphore type, power-operated home signals, power-operated switches, movable point frogs and derails, and for all approach signals, except light signals with all aspects controlled by polar or coded track circuits, or line circuits so installed that a single fault will not permit a more favorable aspect than intended to be displayed.

§ 236.308 Mechanical or electric locking or electric circuits; requisites.

This section prohibits display of conflicting aspects except on track used for switching movements only by one train at a time. Manual interlockings installed prior to October 1, 1950, are excluded provided simultaneous opposing movements are not permitted between stations on either side of the interlocking when it is unattended.
Mechanical locking, electric locking, or electric circuits are required to be installed so that signals cannot display aspects which permit conflicting movements.

Opposing signals on track used for switching movements only are excluded and may display aspect indicating "proceed at restricted speed" when used by only one train at a time.

§ 236.309 Loss of shunt protection; where required.

This section requires that loss of shunt of 5 seconds or less, regardless if it occurs on the approach circuit or on a track circuit within the limits of an automatic interlocking, must not permit established route to be changed. It also requires that loss of shunt of 5 seconds or less shall not permit the release of route locking.

It applies to all automatic interlockings whether or not they are connected to other signal systems. This includes automatic drawbridges, manual interlockings arranged for automatic operation when unattended and interlockings having both automatic and controlled routes, and to route locking of power-operated switch.

§ 236.310 Signal governing approach to home signal.

This rule requires that a signal be provided on main track to govern the approach with the current of traffic to any home signal. It excludes the first signal encountered when leaving yards or stations and authorized speed approaching home signal is not higher than slow speed. It provides for use of inoperative approach signal when authorized speed between home signals on route governed is 20 mph or less.

§ 236.311 Signal control circuits, selection through track relays, and through signal mechanism contacts and time releases at automatic interlocking.

This section requires that at all interlockings the control circuit for aspect with indication more favorable than "proceed at restricted speed" be selected through relays or devices that function as track relays of all track circuits in the route governed or through repeating relays for such track circuits. Additionally, at automatic interlocking, such control circuits shall be selected through relays or devices that function as track relays of track circuits in all conflicting routes or through repeating relays for such track circuits; through signal mechanism contacts or through relay contacts closed when conflicting signals display stop aspects; and through normal contacts of time releases or timing devices for conflicting routes or contact of relays repeating the normal position of contacts on such time releases or timing devices.

§ 236.312 Movable bridge, interlocking of signal appliances with bridge devices.

This rule requires that interlocking of movable bridge be so interconnected with bridge devices that bridge must be properly locked and track properly alined before a
signal
governing movements over the bridge can display an aspect to proceed.

The bridge locking members shall be within 1 inch of their proper positions and
the track rail on the movable span within 3/8 inch of correct surface and alinemen
t with rail seating device on bridge abutment or fixed span. Emergency bypass switches and
devices shall be locked or sealed.

§ 236.314 Electric lock for hand-operated switch or derail.

This requires each hand-operated switch or derail within interlocking limits where
train speeds exceed 20 mph be electrically locked. At manually operated interlocking it
shall be controlled by the operator of the machine. Approach or time locking shall be
provided.

Rules and Instructions

§ 236.326 Mechanical locking removed or disarranged; requirements for
permitting train movements through interlocking.

This section prescribes the procedures for train operation through interlocking
when the mechanical interlocking is being changed or is removed from the machine, or
locking becomes disarranged or broken.

§ 236.327 Switch, movable point frog or split point derail.

Switch, movable point frog or split point derail equipped with lock rod shall be so
adjusted that locking is prevented when the switch point is obstructed by 3/8 inch
obstruction.

§ 236.328 Plunger of facing-point lock.

This rule requires that plunger of lever operated facing-point lock have at least 8
inches stroke and, when unlocked, clear the lock rod not more than 1 inch.

§ 236.329 Bolt lock.

This section requires that bolt lock be so maintained that governing signal over a
switch or derail cannot display an aspect to proceed unless derail is in nonderailing
position and switch is within 1/2 inch proper position.

§ 236.330 Locking dog of switch-and-lock movement.

This requires that locking dog of switch and lock movement extend through lock
rod 1/2 inch or more in either normal or reverse position.

§ 236.334 Point detector.
Point detector shall be so maintained that contacts cannot be opened by manually applying force at the closed point when switch is locked in either normal or reverse position. Its circuit controller contacts shall not assume the position corresponding to switch point closure if the switch point is prevented by an obstruction from closing to within 1/4 inch where latch-out device is not used and 3/8 inch where latch-out device is used.

§ 236.335 Dogs, stops and trunnions of mechanical locking.

This requires that driving pieces, dogs, stops and trunnions be rigidly fastened to locking bars, that swing dogs have full and free movement and that top plates be securely fastened in place.

§ 236.336 Locking bed.

This section requires that various parts of the locking bed, locking bed supports, and tappet stop rail shall be rigidly secured in place and aligned to permit free operation of locking.

§ 236.337 Locking faces of mechanical locking; fit.

Locking faces shall fit squarely against each other when locked with minimum engagement of at least 1/2 the designed locking face.

§ 236.338 Mechanical locking required in accordance with locking sheet and dog chart.

This rule requires that mechanical locking in service be in accordance with locking sheet and dog chart. Section 236.1 requires locking sheet and dog chart to be kept at mechanical interlocking and be correct and legible.

§ 236.339 Mechanical locking, maintenance requirements.

This section requires that locking and connections be maintained so that motion of levers or latches, when locked, do not exceed prescribed tolerances.

**Mechanical Machine:**

More than 90% of mechanical interlocking machines installed were of two types: Saxby and Farmer and Style A. Both have latch operated locking. When locked, the latch block of each lever may not be raised so that the bottom thereof is within 3/8 inch of top of quadrant. The balance of the machines installed have lever operated locking. When locked, the lever latch block may not be moved more than the 3/8 inch on top of the quadrant.

**Electromechanical Machine:**
Electromechanical machines are combinations of electric machines and mechanical machines. When locked, electric levers operating in horizontal plane may not be moved more than 5/16 inch in normal position or more than 9/16 inch in reverse position. When locked, electric levers moving in an arc may not be moved more than 5 degrees. When locked, the mechanical levers must comply with requirements for mechanical machines.

**Power Machine:**

At some large manual interlockings, power (electric) interlocking machines manufactured by the Federal Railway Signal Company were installed. When locked, the latch block of each lever may not be raised so that the bottom thereof is within 7/32 inch of top of quadrant.

The majority of power interlocking machines installed at large manual interlockings were Model 2, Model 14, and Model 5. The levers of these machines must meet the same requirements as the electric levers of electromechanical machines.

§ 236.340 Electromechanical interlocking machine; locking between electrical and mechanical levers.

This section requires that locking between electric and mechanical levers of electromechanical interlocking machine be maintained so that mechanical lever cannot be operated except when released by electric lever.

§ 236.341 Latch shoes, rocker, links and quadrants.

This section requires that latch shoes, rocker links, and quadrants of S&F machines be maintained so that locking will not release when a downward force not exceeding a man's weight is exerted on the rocker with the lever in mid-stroke position.

§ 236.342 Switch circuit controller.

Switch circuit controller connected at the point to switch, derail, or movable point frog shall be maintained so that its contacts will not be in position corresponding to switch point closure when point is open 1/4 inch or more in either normal or reverse position.

**Inspection and Tests**

§ 236.376 Mechanical locking.

This rule requires testing of mechanical locking when new locking is installed, when there is a change in locking or when locking is restored after being disarranged. It requires a complete test of all mechanical locking at least once every 2 years. Test should be made to insure that levers equipped with electric locks mechanically lock all
levers previously operated in that lineup. Check shall be made to determine that the locking is in accordance with the locking sheet and dog chart as required by § 236.338. Compliance with §§ 236.326, 236.335, 236.336, 236.337, 236.339, 236.340, and 236.341 is required.

§ 236.377 Approach locking.

Approach locking shall be tested when installed, modified or disarranged and at least once every 2 years, whichever shall first occur.

§ 236.378 Time locking.

Time locking to be tested when installed, modified, or disarranged and at least once every 2 years, whichever shall occur first.

§ 236.379 Route locking.

This section requires that route or any other type of switch locking be tested when installed, modified, or disarranged and at least once every 2 years, whichever shall first occur.

§ 236.380 Indication locking.

Indication locking shall be tested when installed, modified, or disarranged and at least once every 2 years, whichever shall first occur.

§ 236.381 Traffic locking.

This section requires that traffic locking be tested when installed, modified, or disarranged and at least once every 2 years, whichever shall first occur.

§ 236.382 Switch obstruction test.

A switch obstruction test shall be made when lock rod is installed or changed out and at least once a month thereafter.

§ 236.383 Valve locks and valve magnets.

Valve locks on valves of the non-cutoff type shall be tested at least once every 3 months and valves and valve magnets be tested at least once every year.

§ 236.384 Cross protection.

Cross protection shall be tested at least once every 6 months.

§ 236.386 Restoring feature on power switches.
This rule requires that restoring feature on power switches be tested once every 3 months.

§ 236.387 Movable bridge locking.

Movable bridge locking shall be tested at least once a year.

Subpart D — Traffic Control Systems

§ 236.401 Automatic block signal system and interlocking standards applicable to traffic control systems.

This section prescribes the following automatic block signal system and interlocking standards be applied to traffic control systems:

§ 236.201 Track-circuit control of signals; § 236.202 Signal governing movements over hand operated switch; § 236.203 Hand-operated crossover between main tracks; protection; § 236.205 Signal control circuits; requirements; § 236.206 Battery or power supply with respect to relay; location; § 236.303 Control circuits for signals, selection through circuit controller operated by switch points or by switch locking mechanism; § 236.307 Indication locking; § 236.309 Loss of shunt protection; where required; § 236.310 Signal governing approach to home signal; § 236.311 Signal control circuits, selection through track relays, or devices functioning as track relays, and through signal mechanism contacts and time releases at automatic interlocking.

§ 236.402 Signals controlled by track circuits and control operator.

This standard requires that all home signal aspects more favorable than "proceed at restricted speed" be controlled by track circuits extending through the entire block. At a controlled point the control circuits may be controlled by a control operator and at manually operated interlockings the home signals shall be controlled manually in cooperation with control operator.

§ 236.403 Signals at controlled point.

This rule requires signals at a controlled point to be so interconnected that aspects to proceed cannot be displayed simultaneously for conflicting movements, except they may display an aspect indicating "proceed at restricted speed" at the same time on track used for switching movements only, by one train at a time.

§ 236.404 Signals at adjacent control points.

Signals at adjacent controlled points shall be so interconnected that aspects to proceed on tracks signaled for movements at greater than restricted speed cannot be displayed simultaneously for conflicting movements.
This section permits restricted speed aspects to be displayed simultaneously for opposing or converging routes at adjacent control points provided the speed restrictions between the control points do not exceed 20 mph. The maximum authorized speed between adjacent controlled points where signals can simultaneously display aspects indicating proceed at restricted speed shall not exceed 20 mph regardless of more favorable aspects displayed and regardless whether or not track is signaled.

§ 236.405  Track signaled for movements in both directions, change of direction of traffic.

This prevents the changing of the direction of traffic from that which was obtained at the time the track was occupied between opposing signals at adjacent controlled points on track signaled for movement in both directions except that when a train having left one controlled point reaches a section of track immediately adjacent to the next controlled point at which switching is to be performed, an aspect permitting movement at not exceeding restricted speed may be displayed into the occupied block.

§ 236.407  Approach or time locking; where required.

Approach or time locking shall be provided for each controlled signal where route or direction of traffic can be changed.

§ 236.408  Route locking.

This specifies where route locking shall be provided and where it shall become effective in the route entered.

At any location in traffic control territory where switches are power-operated, route locking must be provided and it must be effective when the first pair of wheels of a locomotive or car passes a point 13 feet in advance of the signal governing its movement. The 13 feet shall be measured from the center of the signal mast to the effective insulated joint. This rule does not apply to controlled signals or automatic signals that do not have power-operated switches in the route governed.

§ 236.410  Locking, hand-operated switch.

This requires that hand-operated switch in main track be locked either electrically or mechanically in normal position, or a signal be provided to govern train movements to the signaled track. It exempts those hand-operated switches on main track where train speeds do not exceed 20 mph, on signaled sidings without intermediate signals where train speeds do not exceed 30 mph, or where trains are not permitted to clear the signaled track. It requires approach or time locking and provides that locking may be released either automatically or by the control operator after the control circuits of signals governing movements over the switch have been opened directly or by shunting of track circuit. When a signal is used in lieu of a lock for movement from auxiliary track to signaled track, the signal shall not display aspect to proceed until control circuits of main track signals in either direction have been opened and the approach locking circuits for
the approaches to the switch are unoccupied or a predetermined time has expired.

§ 236.426 Interlocking rules and instructions applicable to traffic control systems.

This rule prescribes the following interlocking rules and instructions be applied to traffic control systems.

§ 236.327 Switch, movable-point frog split point derail; § 236.328 Plunger of facing-point lock; § 236.330 Locking dog of switch-and-lock movement; § 236.334 Point detector; § 236.342 Switch circuit controller.

§ 236.476 Interlocking inspections and tests applicable to traffic control systems.

This rule prescribes the following interlocking inspections and tests be made of traffic control systems.

§ 236.377 Approach locking; § 236.378 Time locking; § 236.379 Route locking; § 236.380 Indication locking; § 236.382 Switch obstruction test; § 236.383 Valve locks, valves and valve magnets; § 236.386 Restoring feature on power switches.

Subpart E — Automatic Train Stop, Train Control and Cab Signal Systems Standards

§ 236.501 Forestalling device and speed control.

This section permits the use of a forestalling device in automatic train stop systems and sets forth the minimum requirements for control of speed in automatic train control systems.

§ 236.502 Automatic brake application, initiation by restrictive block conditions stopping distance in advance.

This is a companion section to § 236.504 and requires that the automatic brake application be initiated at least stopping distance to the entrance of a block where any condition exists as described in § 236.205.

§ 236.503 Automatic brake application; initiation when predetermined rate of speed exceeded.

This is a companion section to § 236.501 and requires overspeed protection of all restrictive features used in automatic train control systems.

§ 236.504 Operation interconnected with automatic block-signal system.

This prescribes the use and operation of an automatic train stop or train control
Either system shall be so interconnected with the signal system that the failure of the engineer to acknowledge a restrictive wayside signal will cause the train stop system to perform its intended function.

§ 236.505 Proper operative relation between parts along roadway and parts on locomotive.

This section requires that proper operation occur between parts along the roadway and parts on the locomotive under all conditions.

§ 236.506 Release of brakes after automatic application.

This prescribes the conditions under which the brakes may be released following an automatic brake application.

§ 236.507 Brake application; full service.

This is a companion rule to § 236.502 and requires the apparatus on the locomotive, when operated, to impose a full service application of the brakes.

§ 236.508 Interference with application of brakes by means of brake valve.

This prohibits use of apparatus that affects the proper functioning of the air brake system.

§ 236.509 Two or more locomotives coupled.

This requires automatic train stop, train control or cab signal apparatus be operative only on the locomotive from which the brakes are controlled.

§ 236.511 Cab signals controlled in accordance with block conditions stopping distance in advance.

This requires that automatic cab signals be continuously controlled and provide proper aspects and stopping distances to conditions described in § 236.205.

§ 236.512 Cab signal indication when locomotive enters block where restrictive conditions obtain.

This is a companion rule to § 236.514 and requires the cab signal indicate "Proceed at Restricted Speed" when a locomotive enters or is within a block in cab signal territory wherein a condition described in § 236.205 exists except where a signal control circuit is deenergized.

§ 236.513 Audible indicator.

When the cab signal aspect changes to a more restrictive indication, an audible
indicator shall sound continuously until silenced by manual operation of an acknowledging device.

§ 236.514 Interconnection of cab signal system with roadway signal system.

This rule prohibits the cab signal from indicating a speed higher than that authorized by roadway signal indication except when the condition changes after the roadway signal has been passed.

§ 236.515 Visibility of cab signals.

This requires that the cab signal be so located that the locomotive crew can plainly see the aspect from their stations.

§ 236.516 Power supply.

Automatic cab signal, train stop, or train control device shall operate from a separate power supply.

Rules and Instructions: Roadway

§ 236.526 Roadway element not functioning properly.

This requires that when the roadway element, except track circuit, of an automatic train stop, train control, or cab signal system has failed to perform its intended function, the associated signal shall be caused manually to display the most restrictive aspect.

§ 236.527 Roadway element insulation resistance.

Insulation resistance between roadway inductor and ground shall be maintained at not less than 10,000 ohms.

§ 236.528 Restrictive condition resulting from open hand-operated switch; requirement.

When a facing point hand-operated switch is open 1/4 inch or more, a trailing-point hand-operated switch 3/8 inch or more, or hand-operated switch is not locked where facing point lock with circuit controller is used, the restrictive condition of continuous inductive automatic train stop or train control device or restrictive cab signal indication of an automatic cab signal device be maintained to within 300 feet of an open hand-operated switch or unlocked facing point lock in equipped territory.

§ 236.529 Roadway element inductor; height and distance from rail.

Inductors of the inert roadway type shall be installed and maintained with the inductor pole faces at a height above the plane of the tops of the rails, and with its inner edge at a horizontal distance from the gage side of the nearest running rail, in accordance
with specifications of the carrier on file with FRA.

§ 236.530 Ramp; height and distance from rail.

This rule requires that ramp of automatic train stop device be installed and maintained at a height above the plane of the rails, and at a horizontal distance from its center line to gage side of the nearest running rail, in accordance with specifications of the carrier on file with the FRA.

§ 236.531 Trip arm; height and distance from rail.

Trip arm of automatic train stop device, when in stop position, shall be installed and maintained at a height above the plane of the tops of the rails, and at a horizontal distance from its center line to gage side of the nearest running rail, in accordance with specifications of the carrier on file with FRA.

§ 236.532 Strap iron inductor; use restricted.

This restricts the use of strap iron inductors, short ramps or other roadway element with characteristics different from its standard type where speed higher than restricted speed is permitted.

§ 236.534 Entrance to equipped territory; requirements.

Where trains are not required to stop at the entrance to equipped territory, except when leaving yards and stations and speed until entering equipped territory does not exceed restricted speed, the automatic train stop, train control or cab signal device shall be operative at least stopping distance from the entrance to such territory except where the approach thereto is governed by automatic approach signal.

Rules and Instructions: Locomotives

§ 236.551 Power supply voltage; requirement.

The tolerance within which the power supply voltage shall be maintained is 10% of rated voltage.

§ 236.552 Insulation resistance; requirement.

When performing periodic test, this prescribes the minimum insulation resistance permitted between wiring and ground.

§ 236.553 Seal, where required.

This rule requires that a seal be maintained on any device other than brake pipe cut-out cock (double heading cock), by means of which the operation of pneumatic portion of automatic train stop or train control apparatus can be cut out.
§ 236.554 Rate of pressure reduction; equalizing reservoir or brake pipe.

This is a companion rule to § 236.508 and requires that the equalizing reservoir pressure or brake pipe pressure reduction during an automatic brake application be at a rate not less than that which results from a manual service application.

§ 236.555 Repaired or rewound receiver coil.

A receiver coil which has been repaired or rewound shall have the same operating characteristics which is possessed originally or as currently specified for new equipment.

§ 236.556 Adjustment of relay.

This prohibits the adjustment of a relay other than in a shop equipped for that purpose except when receiver coils, electropneumatic valve or other essential part of the equipment is replaced. Irregularities in power-supply voltage or other variable factors in the circuits shall not be compensated for by adjustment of the relay.

§ 236.557 Receiver; location with respect to rail.

(a) Receiver of intermittent inductive automatic train stop device of the inert roadway element type shall be maintained with bottom of the receiver at a height above the plane of the tops of the rails, and with its outer edge at a horizontal distance from the gage side of the nearest rail, in accordance with specifications of the carrier.

(b) Receiver of continuous inductive automatic cab signal, train stop, or train control device of locomotive equipped with on-board test equipment, shall be maintained with the bottom of the receiver at a height above the plane of the tops of the rails, and with its outer edge at a horizontal distance from the gage side of the nearest rail, in accordance with specifications of the carrier.

§ 236.560 Contact element, mechanical trip type; location with respect to rail.

Contact element of automatic train stop device of the mechanical trip type shall be maintained at a height above the plane of the tops of the rails, and at a horizontal distance from the gage side of the rail, in accordance with specifications of the carrier.

§ 236.562 Minimum rail current required.

The minimum rail current required to restore the locomotive equipment of continuous inductive automatic train stop or train control device to normal condition or to obtain a proceed indication of automatic cab signal device (pick-up) shall be in accordance with specifications of the carrier.

§ 236.563 Delay time.
This rule prescribes that the delay time of automatic train stop or train control
system not exceed 8 seconds and that the spacing of signals to meet the requirements of §
236.24 take into consideration the delay time.

§ 236.564 Acknowledging time.

The acknowledging time of intermittent automatic train stop device shall not
exceed 30 seconds.

§ 236.565 Provision made for preventing operation of pneumatic brake-
applying apparatus by double-heading cock; requirements.

This section requires that where provision are made for preventing the operation
of the pneumatic brake-applying apparatus of an automatic train stop or train control
device when the double-heading cock is placed in double-heading position, it shall be so
arranged that the automatic brake valve is cut out in advance of or simultaneously with
the train stop or train control apparatus.

§ 236.566 Locomotive of each train operating in train stop, train control
or cab signal territory; equipped.

This requires that the locomotive, from which brakes are controlled, of each train
operating in automatic train stop, train control or cab signal territory shall be equipped
with apparatus responsive to the roadway equipment installed on all or any part of the
route traversed, and such apparatus shall be in operation.

§ 236.567 Restrictions imposed when device fails and/or is cut out en
route.

This section sets forth the procedures and restrictions that shall be followed when
an automatic train stop, train control or cab signal device fails and/or is cut out en route.
Where an automatic train stop, train control, or cab signal device fails and/or is cut out en
route, train may proceed at restricted speed or if an automatic block signal system is in
operation according to signal indication but not to exceed medium speed, to the next
available point of communication where report must be made to a designated officer.
Where no automatic block signal system is in use train shall be permitted to proceed at
restricted speed or where automatic block signal system is in operation according to
signal indication but not to exceed maximum speed to a point where absolute block can
be established. Where an absolute block is established in advance of the train on which
the device is operative train may proceed at not to exceed 79 miles per hour.

§ 236.568 Difference between speeds authorized by roadway signal and
cab signal; action required.

In the event a cab signal authorizes a speed different from that authorized by a
roadway signal, the most restrictive speed shall not be exceeded.
Inspections and Tests: Roadway

§ 236.576 Roadway element.

Roadway elements, except track circuits, including those for test purposes, shall be gaged monthly for height and alinement, and shall be tested at least every 6 months.

§ 236.577 Test, acknowledgment and cut-in circuits.

Test, acknowledgment and cut-in circuits shall be tested at least once every 12 months.

Inspection and Tests: Locomotive

§ 236.586 Daily or after trip test.

(a) Except where tests prescribed by § 236.588 are performed at intervals of not more than 2 months, each locomotive equipped with an automatic cab signal or train stop or train control device operating in equipped territory shall be inspected for damage to the equipment and tested at least once each calendar day or within 24 hours before departure upon each trip.

(b) Each equipped locomotive shall be tested to determine the locomotive equipment is responsive to the wayside equipment and shall be cycled to determine the device functions as intended.

(c) Each locomotive equipped with intermittent inductive automatic train stop or noncoded continuous inductive automatic train control device shall be tested to determine that the pickup of the device is within specified limits.

§ 236.587 Departure test.

(a) The automatic train stop, train control, or cab signal apparatus on each locomotive, except a locomotive or a multiple-unit car equipped with mechanical trip stop, shall be tested using one of the following methods:

(1) Operation over track elements;
(2) Operation over test circuit;
(3) Use of portable test equipment; or
(4) Use of on-board test device.

(b) The test shall be made on departure of the locomotive from its initial terminal unless that apparatus will be cut out between the initial terminal and the equipped territory. If the apparatus is cut out between the initial terminal and the equipped territory the test shall be made prior to entering equipped territory.
(c) If a locomotive makes more than one trip in any 24-hour period, only one departure test is required in such 24-hour period.

(d) If a departure test is made by an employee, other than the engineer, the engineer shall be informed of the results of such test and a record kept thereof. (Record requirement not yet approved by the Office of Management and Budget)

Results of departure tests shall be retained for 92 days. Results of all other tests listed in this section shall be retained until the next record is filed but in no case less than one year.

Whoever performs the departure test shall certify in writing that such test was properly performed. The certification and the test results shall be posted in the cab of the locomotive and a copy of the certification and test results left at the test location for filing in the office of the supervisory official having jurisdiction.

If it is impractical to leave a copy of the certification and test results at the location of the test, the test results shall be transmitted to either (i) the dispatcher or (ii) one other designated individual at each location, who shall keep a written record of the test results and the name of the person performing the test. These records shall be retained for at least 92 days.

§ 236.588 Periodic test.

Except as provided in § 236.586, periodic test of the automatic train stop, train control, or cab signal apparatus shall be made at least once every 92 days, and on multiple-unit cars as specified by the carrier, subject to approval by the FRA.

§ 236.589 Relays.

(a) Each relay shall be removed from service, subjected to thorough test, necessary repairs and adjustments made, and shall not be replaced in service unless its operating characteristics are in accordance with the limits within which such relay is designed to operate, as follows:

(1) Master or primary relays of torque type depending on spring tension to return contacts to deenergized position in noncoded continuous inductive automatic train stop or train control system, at least every 2 years; and (2) all others, at least once every 6 years.

§ 236.590 Pneumatic apparatus.

Automatic train stop, train control or cab signal pneumatic apparatus shall be inspected and cleaned at least once every 736 days.33/

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33/ Any changes in the inspection and cleaning of the airbrakes under 49 C.F.R. § 229.29 will automatically apply to this section.
Subpart F — Dragging Equipment and Slide Detectors and Other Similar Protective Devices

Standards

§ 236.601 Signals controlled by devices; location.

Signals controlled by devices used to provide protection against unusual contingencies, such as landslides, dragging equipment, burned bridges or trestles and washouts shall be located so that stopping distance will be provided between the signal and the point where it is necessary to stop the train.

Subpart G — Definitions

§ 236.700 Definitions.

Definitions of the technical words used in the signal rules are contained in this subpart.

§ 236.701 Application, brake; full service.

An application of the brakes resulting from a continuous or a split reduction in brake pipe pressure at a service rate until maximum brake cylinder pressure is developed. As applied to an automatic or electropneumatic brake with speed governor control, an application other than emergency which develops the maximum brake cylinder pressure, as determined by the design of the brake equipment for the speed at which the train is operating.

49 U.S.C. §§ 20102; 20602-20605; 20902; 21302; 21304
PASSENGER TRAIN EMERGENCY PREPAREDNESS

Railroads operating intercity and commuter trains shall adopt and comply with a written emergency preparedness plan which is approved by FRA. An on-board crewmember is required to promptly notify the control center of any emergency, and the control center notifies the appropriate railroad officials, emergency responders, and adjacent modes of transportation. The plan shall cover individual employee responsibilities, including the control center personnel, and provide for periodic training at least every two years. The plan shall include emergencies in a tunnel of 1,000 feet or more in length.

Each railroad shall establish a liaison working relationship with on-line emergency responders and offer training on the program information and materials to them, as well as inviting them to participate in emergency simulations. The plan shall be distributed to them at least once every 3 years. The plan shall state the types of emergency equipment on board and indicate their location on each car. This equipment shall include, as a minimum, one fire extinguisher per car, one pry bar per car, and one flashlight per on board crewmember. In addition, each railroad providing intercity passenger service shall equip each car with a first aid kit.

Auxiliary portable lighting (such as a flashlight) must be accessible and provide at least 15 minutes brilliant illumination after the onset of the emergency, and continuous or intermittent illumination during the next 60 minutes.

There shall be scheduled maintenance and replacement of the emergency equipment, lighting and first aid kits.

Each railroad shall conspicuously and legibly post emergency instructions inside the cars for the passengers.

Emergency simulations for commuter and short haul passenger railroads with less than 150 route miles and less than 200 million passenger miles shall conduct at least one full scale simulation every 2 years. Those carriers with greater miles shall conduct the simulation at least once every year. Intercity passenger service shall conduct the simulation at least once each year.

All door exits intended for emergency egress shall be either lighted or conspicuously and legibly marked with luminescent material on the inside of the car and clear instructions posted at or near the exits. All door exits intended for emergency responders access for extrication of passengers must be marked with retroflective material and clear instructions posted at each door.

There shall be scheduled maintenance, inspection, and repair of emergency window and door exits. A representative sample of the window exits shall be tested at least once every 180 days.

49 C.F.R. Part 239
PART 238--PASSENGER EQUIPMENT SAFETY STANDARDS

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Subpart A--General

§ 238.1 -- Purpose and scope.

The purpose of this part is to prevent collisions, derailments, and other occurrences involving railroad passenger equipment that cause injury or death to railroad employees, railroad passengers, or the general public; and to mitigate the consequences of such occurrences to the extent they cannot be prevented.

§ 238.3 -- Applicability.

(a) Except as provided in paragraph (c) of this section, this part applies to all:

(1) Railroads that operate intercity or commuter passenger train service on standard gage track which is part of the general railroad system of transportation; and

(2) Railroads that provide commuter or other short-haul rail passenger train service in a metropolitan or suburban area as described by 49 U.S.C. 20102(1), including public authorities operating passenger train service.

(b) Railroads that permit to be used or hauled on their lines passenger equipment subject to this part, in violation of a power brake provision of this part or a safety appliance provision of this part, are subject to the power brake and safety appliance provisions of this part with respect to such operations.

(c) This part does not apply to:

(1) Rapid transit operations in an urban area that are not connected to the general railroad system of transportation;

(2) A railroad that operates only on track inside an installation that is not part of the general railroad system of transportation;

(3) Tourist, scenic, historic, or excursion operations, whether on or off the general railroad system of transportation; or

(4) Circus trains.

§ 238.5 -- Definitions.

As used in this part-

AAR means the Association of American Railroads.

APTA means the American Public Transit Association.

Actuator means a device directly actuated by the movement of the brake cylinder piston which provides an indication of the piston travel.

Administrator means the Administrator of the Federal Railroad Administration or the Administrator's delegate.

Alerter means a device or system installed in the locomotive cab to promote continuous, active locomotive engineer attentiveness by monitoring select locomotive engineer-induced control activities. If fluctuation of a monitored locomotive engineer-induced control activity is not detected within a predetermined time, a sequence of audible and visual alarms is activated so as to progressively prompt a response by the locomotive engineer. Failure by the locomotive engineer to institute a change of state in a monitored control, or acknowledge the alerter alarm activity through a manual reset provision, results in a penalty brake application that brings the locomotive or train to a stop.

Anti-climbing mechanism means the parts at the ends of adjoining vehicles in a train that are designed to engage when subjected to large buff loads to prevent the override of one vehicle by another.
Bind means restrict the intended movement of one or more brake system components by obstruction, increased friction, or reduced clearance.

Block of cars means one car or multiple cars in a solid unit coupled together for the purpose of being added to, or removed from, a train as a solid unit.

Brake, air or power brake means a combination of devices operated by compressed air, arranged in a system, and controlled manually, electrically, or pneumatically, by means of which the motion of a rail car or locomotive is retarded or arrested.

Brake, disc means a retardation system used on some rail vehicles, primarily passenger equipment, that utilizes flat metal discs as the braking surface instead of the wheel tread.

Brake, dynamic means a train braking system whereby the kinetic energy of a moving train is used to generate electric current at the locomotive traction motors, which is then dissipated through banks of resistor grids or back into the catenary or third rail system.

Brake, effective means a brake that is capable of producing its required designed retarding force on the train. A brake is not effective if its piston travel is in excess of the maximum prescribed limits. On vehicles equipped with nominal 12-inch stroke brake cylinders, the brake is not effective if its piston travel exceeds 10 1/2 inches.

Brake indicator means a device, actuated by brake cylinder pressure, which indicates whether brakes are applied or released.

Brake, inoperative means a primary brake that, for any reason, no longer applies or releases as intended or is otherwise ineffective.

Brake, on-tread friction means a braking system that uses a brake shoe that acts on the tread of the wheel to retard the vehicle.

Brake, parking or hand brake means a brake that can be applied and released by hand to prevent movement of a stationary rail car or locomotive.

Brake pipe means the system of piping (including branch pipes, angle cocks, cutout cocks, dirt collectors, hoses, and hose couplings) used for connecting locomotives and all rail cars for the passage of air to control the locomotive and car brakes.

Brake, power means "air brake" as that term is defined in this section.

Brake, primary means those components of the train brake system necessary to stop the train within the signal spacing distance without thermal damage to friction braking surfaces.

Brake, secondary means those components of the train brake system which develop supplemental brake retarding force that is not needed to stop the train within signal spacing distances or to prevent thermal damage to friction braking surfaces.

Brake shoes or pads aligned with tread or disc means that the surface of the brake shoe or pad, respectively, engages the surface of the wheel tread or disc, respectively, to prevent localized thermal stress.

Braking system, blended means a braking system where the primary brake and one or more secondary brakes are automatically combined to stop the train. If the secondary brakes are unavailable, the blended brake uses the primary brake alone to stop the train.

Calendar day means a time period running from one midnight to the next midnight on a given date.

Class I brake test means a complete passenger train brake system test and inspection (as further specified in § 238.313) performed by a qualified maintenance person to ensure that the air brake system is 100 percent effective.

Class IA brake test means a test and inspection (as further specified in § 238.315) performed by a qualified person of the air brake system on each car in a passenger train.
to ensure that the brakes apply and release on each car in the train in response to train line commands.

Class II brake test means a test and inspection (as further specified in § 238.317) performed by a qualified person of brake pipe integrity and continuity from the controlling locomotive to the rear unit of a passenger train.

Collision posts means structural members of the end structures of a vehicle that extend vertically from the underframe to which they are securely attached and that provide protection to occupied compartments from an object penetrating the vehicle during a collision.

Control valves means that part of the air brake equipment on each rail car or locomotive that controls the charging, application, and release of the air brakes, in response to train line commands.

Corner posts means structural members located at the intersection of the front or rear surface with the side surface of a rail vehicle and which extend vertically from the underframe to the roof. Corner posts may be combined with collision posts to become part of the end structure.

Crack means a fracture without complete separation into parts, except that, in a casting, a shrinkage crack or hot tear that does not significantly diminish the strength of the member is not a crack.

Crash energy management means an approach to the design of rail passenger equipment which controls the dissipation of energy during a collision to protect the occupied volumes from crushing and to limit the decelerations on passengers and crewmembers in those volumes. This may be accomplished by designing energy-absorbing structures of low strength in the unoccupied volumes of a rail vehicle or passenger train to collapse in a controlled manner, while providing higher structural strength in the occupied volumes. Energy deflection can also be part of a crash energy management approach. Crash energy management can be used to help provide anti-climbing resistance and to reduce the risk of train buckling during a collision.

Crash refuge means a volume with structural strength designed to maximize the survivability of crewmembers stationed in the locomotive cab during a collision.

Crewmember means a railroad employee called to perform service covered by the Federal hours of service laws at 49 U.S.C. 21103 and subject to the railroad's operating rules and program of operational tests and inspections required in § 217.9 and § 217.11 of this chapter.

Critical buckling stress means the minimum stress necessary to initiate buckling of a structural member.

Emergency brake application means an irretrievable brake application resulting in the maximum retarding force available from the train brake system.

Emergency window means that segment of a side-facing glazing panel which has been designed to permit rapid and easy removal in an emergency situation.

End structure means the main support structure projecting upward from the underframe of a locomotive, passenger car, or other rail vehicle. The end structure is securely attached to the underframe at each end of a rail vehicle.

50th-percentile adult male means a person weighing 164 pounds (plus or minus 3 pounds) and possessing the following dimensions: erect sitting height: 35.7 inches (plus or minus 0.1 inch); hip breadth (sitting): 14.7 inches (plus or minus 0.7 inch); hip circumference (sitting): 42 inches; waist circumference (sitting): 32 inches (plus or minus
0.6 inch); chest depth: 9.3 inches (plus or minus 0.2 inch); and chest circumference: 37.4 inches (plus or minus 0.6 inch).

_Foul_ means restrict the intended movement of one or more brake system components because the component is snagged, entangled, or twisted.

_FRA_ means the Federal Railroad Administration.

_Fuel tank, external_ means a fuel containment volume that extends outside the car body structure of a locomotive.

_Fuel tank, internal_ means a fuel containment volume that does not extend outside the car body structure of a locomotive.

_Full-height collision post, corner post, or side frame post_ means any vertical framing member in the rail car body structure that spans the distance between the underframe and the roof at the car body section where the post is located. For collision posts located at the approximate third points laterally of an end frame, the term "full-height" applies to posts that extend and connect to supporting structural members in the roof at the location of the posts, or to a beam connected to the top of the end-frame and supported by the roof rails (or anti-telescoping plate), or to both.

_Full service application_ means a brake application which results in a brake cylinder pressure at the service limiting valve setting or equivalent.

_Glazing, end-facing_ means a glazing panel located where a line perpendicular to the exterior surface of the panel makes an angle of 50 degrees or less with the longitudinal center line of the rail vehicle in which the panel is installed. A glazing panel that curves so as to meet the definition for both side-facing and end-facing glazing is considered end-facing glazing.

_Glazing, exterior_ means a glazing panel that is an integral part of the exterior skin of a rail vehicle and has a surface exposed to the outside environment.

_Glazing, side-facing_ means a glazing panel located where a line perpendicular to the exterior surface of the panel makes an angle of more than 50 degrees with the longitudinal center line of the rail vehicle in which the panel is installed.

_Handrails_ means safety appliances installed on either side of a rail vehicle's exterior doors to assist passengers and crewmembers to safely board and depart the vehicle.

_Head end power_ means power generated on board the locomotive of a passenger train used for purposes other than propelling the train, such as cooking, heating, illumination, ventilation and air conditioning.

_In passenger service/in revenue service_ means a train or passenger equipment that is carrying, or available to carry, passengers. Passengers need not have paid a fare in order for the equipment to be considered in passenger or in revenue service.

_In service_, when used in connection with passenger equipment, means:

(1) Passenger equipment subject to this part that is in passenger or revenue service in the U.S.; and

(2) All other passenger equipment subject to this part, unless the passenger equipment:

(i) Is being handled in accordance with §§ 238.15, 238.17, 238.305(d) or 238.503(f), as applicable;

(ii) Is in a repair shop or on a repair track;

(iii) Is on a storage track and is not carrying passengers; or

(iv) Has been delivered in interchange but has not been accepted by the receiving railroad.

_Interior fitting_ means any component in the passenger compartment which is mounted to the floor, ceiling, sidewalls, or end walls and projects into the passenger compartment.
more than 25 mm (1 in.) from the surface or surfaces to which it is mounted. Interior fittings do not include side and end walls, floors, door pockets, or ceiling lining materials, for example.

**Lateral** means the horizontal direction perpendicular to the direction of travel.

**Locomotive** means a piece of on-track rail equipment, other than hi-rail, specialized maintenance, or other similar equipment, which may consist of one or more units operated from a single control stand with one or more propelling motors designed for moving other passenger equipment; with one or more propelling motors designed to transport freight or passenger traffic, or both; or without propelling motors but with one or more control stands. This term does not include a locomotive propelled by steam power unless it is used to haul an intercity or commuter passenger train. Nor does this term include a freight locomotive when used to haul a passenger train due to failure of a passenger locomotive.

**Locomotive cab** means the compartment or space on board a locomotive where the control stand is located and which is normally occupied by the engineer when the locomotive is operated.

**Locomotive, cab car** means rail rolling equipment intended to provide transportation for members of the general public that is without propelling motors but equipped with one or more control stands.

**Locomotive, controlling** means the locomotive from which the locomotive engineer exercises control over the train.

**Locomotive, MU** means rail rolling equipment self-propelled by any power source and intended to provide transportation for members of the general public; however, this term does not include an MU locomotive propelled by steam power unless it is used to haul an intercity or commuter passenger train.

**Longitudinal** means in a direction parallel to the normal direction of travel.

**Luminescent material** means material that absorbs light energy when ambient levels of light are high and emits this stored energy when ambient levels of light are low, making the material appear to glow in the dark.

**L/V ratio** means the ratio of the lateral force that any wheel exerts on an individual rail to the vertical force exerted by the same wheel on the rail.

**MIL-STD-882C** means a military standard issued by the United States Department of Defense to provide uniform requirements for developing and implementing a system safety plan and program to identify and then eliminate the hazards of a system or reduce the associated risk to an acceptable level.

**Monocoque** means a type of rail vehicle construction where the shell or skin acts as a single unit with the supporting frame to resist and transmit the loads acting on the rail vehicle.

**Mph** means miles per hour.

**95th-percentile adult male** means, except as used in § 238.447(f)(2), a person weighing 215 pounds and possessing the following dimensions: erect sitting height: 38 inches; hip breadth (sitting): 16.5 inches; hip circumference (sitting): 47.2 inches; waist circumference (sitting): 42.5 inches; chest depth: 10.5 inches; and chest circumference 44.5 inches.

**Occupied volume** means the volume of a rail vehicle or passenger train where passengers or crewmembers are normally located during service operation, such as the operating cab and passenger seating and sleeping areas. The entire width of a vehicle's end
compartment that contains a control stand is an occupied volume. A vestibule is typically not considered occupied, except when it contains a control stand for use as a control cab.  

Ordered, as applied to acquisition of equipment, means that the acquiring entity has given a notice to proceed to manufacture the equipment that represents a firm financial commitment to compensate the manufacturer for the contract price of the equipment or for damages if the order is nullified. Equipment is not ordered if future exercise of a contract option is required to place the remanufacturing process in motion. 

Override means to climb over the normal coupling or side buffers and linking mechanism and impact the end of the adjoining rail vehicle or unit above the underframe. 

Passenger car means rail rolling equipment intended to provide transportation for members of the general public and includes a self-propelled car designed to carry passengers, baggage, mail, or express. This term includes a passenger coach, cab car, and an MU locomotive. In the context of articulated equipment, "passenger car" means that segment of the rail rolling equipment located between two trucks. This term does not include a private car. 

Passenger coach means rail rolling equipment intended to provide transportation for members of the general public that is without propelling motors and without a control stand. 

Passenger equipment -means (1) All powered and unpowered passenger cars, locomotives used to haul a passenger car, and any other rail rolling equipment used in a train with one or more passenger cars. Passenger equipment includes- (i) A passenger coach, (ii) A cab car, (iii) A MU locomotive, (iv) A locomotive not intended to provide transportation for a member of the general public that is used to power a passenger train, and (v) Any non-self-propelled vehicle used in a passenger train, including an express car, baggage car, mail car, freight car, or a private car. (2) In the context of articulated equipment, "passenger equipment" means a segment of rail rolling equipment located between two trucks that is used in a train with one or more passenger cars. This term does not include a freight locomotive when used to haul a passenger train due to failure of a passenger locomotive. 

Passenger station means a location designated in a railroad's timetable where passengers are regularly scheduled to get on or off any train. 

Permanent deformation means the undergoing of a permanent change in shape of a structural member of a rail vehicle. 

Person means an entity of any type covered under 1 U.S.C. 1, including but not limited to the following: a railroad; a manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacturer, lessor, lessee, or independent contractor. 

Piston travel means the amount of linear movement of the air brake hollow rod (or equivalent) or piston rod when forced outward by movement of the piston in the brake cylinder or actuator and limited by the brake shoes being forced against the wheel or disc. 

Power car means a rail vehicle that propels a Tier II passenger train or is the lead vehicle in a Tier II passenger train, or both.
Pre-revenue service acceptance testing plan means a document, as further specified in § 238.111, prepared by a railroad that explains in detail how pre-revenue service tests of passenger equipment demonstrate that the equipment meets Federal safety standards and the railroad's own safety requirements.

Private car means rail rolling equipment that is used only for excursion, recreational, or private transportation purposes. A private car is not a passenger car.

Primary responsibility means the task that a person performs during at least 50 percent of the time that the person is working. The totality of the circumstances will be considered on a case-by-case basis in circumstances where an individual does not spend 50 percent of his or her workday engaged in any one readily identifiable type of activity. Time spent supervising employees engaged in the functions of troubleshooting, inspection, testing, maintenance, or repair of train brake and mechanical components and systems covered by this part shall be considered work which is generally consistent with the function of troubleshooting of such systems and components for the purpose of the definition of this term and the definition of "Qualified Maintenance Person."

Public highway-rail grade crossing means a location where a public highway, road or street, including associated sidewalks or pathways, crosses one or more active railroad tracks at grade.

Qualified maintenance person means a qualified person who has received, as a part of the training, qualification, and designation program required under § 238.109, instruction and training that includes "hands-on" experience (under appropriate supervision or apprenticeship) in one or more of the following functions: troubleshooting, inspection, testing, maintenance, or repair of the specific train brake and other components and systems for which the person is assigned responsibility. This person shall also possess a current understanding of what is required to properly repair and maintain the safety-critical brake or mechanical components for which the person is assigned responsibility. Further, the qualified maintenance person shall be a person whose primary responsibility includes work generally consistent with the above-referenced functions and is designated to:

(1) Conduct Class I brake tests under this part;
(2) Conduct exterior calendar day mechanical inspections on MU locomotives or other passenger cars and unpowered vehicles under this part; or
(3) Determine whether equipment not in compliance with this part may be moved as required by § 238.17.

Qualified person means a person who has received, as a part of the training, qualification, and designation program required under § 238.109, instruction and training necessary to perform one or more functions required under this part. The railroad is responsible for determining that the person has the knowledge and skills necessary to perform the required function for which the person is assigned responsibility. The railroad determines the qualifications and competencies for employees designated to perform various functions in the manner set forth in this part. Although the rule uses the term "qualified person" to describe a person responsible for performing various functions required under this part, a person may be deemed qualified to perform some functions but not qualified to perform other functions. For example, although a person may be deemed qualified to perform the Class II brake test required by this part, that same person may or may not be qualified to perform the Class IA brake test or authorize the movement of defective equipment under this part. The railroad will determine the required functions
for which an individual will be deemed a "qualified person" based upon the instruction and training the individual has received pursuant to § 238.109 on a particular function. 

*Repair point* means a location designated by a railroad where repairs of the type necessary occur on a regular basis. A repair point has, or should have, the facilities, tools, and personnel qualified to make the necessary repairs. A repair point need not be staffed continuously.

*Respond as intended* means to produce the result that a device or system is designed to produce.

*Rollover strength* means the strength provided to protect the structural integrity of a rail vehicle in the event the vehicle leaves the track and impacts the ground on its side or roof.

*Roof rail* means the longitudinal structural member at the intersection of the side wall and the roof sheathing.

*Running brake test* means a test (as further specified in § 238.319) performed by a qualified person of a train system or component while the train is in motion to verify that the system or component functions as intended.

*Running gear defect* means any condition not in compliance with this part which involves a truck component, a propulsion system component, a draft system component, a wheel, or a wheel component.

*Safety appliance* means an appliance required under 49 U.S.C. chapter 203, excluding power brakes. The term includes automatic couplers, hand brakes, sill steps, handholds, handrails, or ladder treads made of steel or a material of equal or greater mechanical strength used by the traveling public or railroad employees that provide a means for safely coupling, uncoupling, or ascending or descending passenger equipment.

*Safety-critical* means a component, system, or task that, if not available, defective, not functioning, not functioning correctly, not performed, or not performed correctly, increases the risk of damage to passenger equipment or injury to a passenger, crewmember, or other person.

*Semi-monocoque* means a type of rail vehicle construction where the shell or skin acts a single unit with the supporting frame to resist and transmit the loads acting on the rail vehicle.

*Semi-permanently coupled* means coupled by means of a drawbar or other coupling mechanism that requires tools to perform the uncoupling operation. Coupling and uncoupling of each semi-permanently coupled unit in a train can be performed safely only while at a maintenance or shop location where personnel can safely get under a unit or between units.

*Shear strength* means the ability of a structural member to resist forces or components of forces acting perpendicular to compression or tension forces, or both, in the member.

*Shock absorbent material* means material designed to prevent or mitigate injuries due to impact by yielding and absorbing much of the energy of impact.

*Side posts* means main vertical structural elements in the sides of a rail vehicle.

*Side sill* means that portion of the underframe or side at the bottom of the rail vehicle side wall.

*Single car test* means a comprehensive test (as further specified in § 238.311) of the functioning of all critical brake system components installed on an individual passenger car or unpowered vehicle, other than a self-propelled passenger car, used or allowed to be used in a passenger train.
Single car test device means a device capable of controlling the application and release of the brakes on an individual passenger car or an unpowered vehicle, other than a self-propelled passenger car, through pneumatic or electrical means.

Skin means the outer covering of a fuel tank and a rail vehicle. The skin may be covered with another coating of material such as fiberglass.

Spall, glazing means small pieces of glazing that fly off the back surface of the glazing when an object strikes the front surface.

Switching service means the classification of freight cars according to commodity or destination; assembling of cars for train movements; changing the position of cars for purposes of loading, unloading, or weighing; placing of locomotives and cars for repair or storage; or moving of rail equipment in connection with work service that does not constitute a train movement.

Telescope means override an adjoining rail vehicle or unit and penetrate into the interior of that adjoining vehicle or unit because of compressive forces.

Terminal means a starting point or ending point of a single scheduled trip for a train, where passengers may get on or off a train. Normally, this location is a point where the train would reverse direction or change destinations.

Tier I means operating at speeds not exceeding 125 mph

Tier II means operating at speeds exceeding 125 mph but not exceeding 150 mph.

Tourist, scenic, historic, or excursion operations means railroad operations that carry passengers, often using antiquated equipment, with the conveyance of the passengers to a particular destination not being the principal purpose. Train movements of new passenger equipment for demonstration purposes are not tourist, scenic, historic, or excursion operations.

Trailer car means a rail vehicle that neither propels a Tier II passenger train nor is the leading unit in a Tier II passenger train. A trailer car is normally without a control stand and is normally occupied by passengers.

Train means a locomotive unit or locomotive units coupled, with or without cars. For the purposes of the provisions of this part related to power brakes, the term "train" does not include such equipment when being used in switching service.

Train brake communication line means the communication link between the locomotive and passenger equipment in a train by which the brake commands are transmitted. This may be a pneumatic pipe, electrical line, or radio signal.

Train, commuter means a passenger train providing commuter service within an urban, suburban, or metropolitan area. The term includes a passenger train provided by an instrumentality of a State or a political subdivision of a State.

Train, long-distance intercity passenger means a passenger train that provides service between large cities more than 125 miles apart and is not operated exclusively in the National Railroad Passenger Corporation's Northeast Corridor.

Train, passenger means a train that transports or is available to transport members of the general public. If a train is composed of a mixture of passenger and freight equipment, that train is a passenger train for purposes of this part.

Train, short-distance intercity passenger means a passenger train that provides service exclusively on the National Railroad Passenger Corporation's Northeast Corridor or between cities that are not more than 125 miles apart.

Train, Tier II passenger means a short-distance or long-distance intercity passenger train providing service at speeds that include those exceeding 125 mph but not exceeding 150 mph.
Trainset, passenger means a passenger train.
Transverse means in a direction perpendicular to the normal direction of travel.
Ultimate strength means the load at which a structural member fractures or ceases to resist any load.
Uncoupling mechanism means the arrangement for operating the coupler by any means.
Underframe means the lower horizontal support structure of a rail vehicle.
Unit means passenger equipment of any type, except a freight locomotive when used to haul a passenger train due to failure of a passenger locomotive.
Unoccupied volume means the volume of a rail vehicle or passenger train which does not contain seating and is not normally occupied by passengers or crewmembers.
Vehicle, rail means passenger equipment of any type and includes a car, trailer car, locomotive, power car, tender, or similar vehicle. This term does not include a freight locomotive when used to haul a passenger train due to failure of a passenger locomotive.
Vestibule means an area of a passenger car that normally does not contain seating and is used in passing from the seating area to the side exit doors.
Witness plate means a thin foil placed behind a piece of glazing undergoing an impact test. Any material spalled or broken from the back side of the glazing will dent or mark the witness plate.
Yard means a system of tracks within defined limits provided for the making up of trains, storing of cars, or other purposes.
Yard air test means a train brake system test conducted using a source of compressed air other than a locomotive.
Yield strength means the ability of a structural member to resist a change in length caused by a heavy load. Exceeding the yield strength may cause permanent deformation of the member.

§ 238.7 -- Waivers.
(a) A person subject to a requirement of this part may petition the Administrator for a waiver of compliance with such requirement. The filing of such a petition does not affect the person's responsibility for compliance with that requirement while the petition is being considered.
(b) Each petition for waiver under this section shall be filed in the manner and contain the information required by part 211 of this chapter.
(c) If the Administrator finds that a waiver of compliance is in the public interest and is consistent with railroad safety, the Administrator may grant the waiver subject to any conditions the Administrator deems necessary.

§ 238.9 -- Responsibility for compliance.
(a) A railroad subject to this part shall not-
(1) Use, haul, permit to be used or hauled on its line, offer in interchange, or accept in interchange any train or passenger equipment, while in service,
   (i) That has one or more conditions not in compliance with a safety appliance or power brake provision of this part; or
   (ii) That has not been inspected and tested as required by a safety appliance or power brake provision of this part; or
(2) Use, haul, offer in interchange, or accept in interchange any train or passenger equipment, while in service,
(i) That has one or more conditions not in compliance with a provision of this part, other than the safety appliance and power brake provisions of this part, if the railroad has actual knowledge of the facts giving rise to the violation, or a reasonable person acting in the circumstances and exercising reasonable care would have that knowledge; or

(ii) That has not been inspected and tested as required by a provision of this part, other than the safety appliance and power brake provisions of this part, if the railroad has actual knowledge of the facts giving rise to the violation, or a reasonable person acting in the circumstances and exercising reasonable care would have that knowledge; or

(3) Violate any other provision of this part.

(b) For purposes of this part, passenger equipment will be considered in use prior to departure but after it has received, or should have received, the inspection required under this part for movement and is deemed ready for passenger service.

(c) Although the duties imposed by this part are generally stated in terms of the duty of a railroad, any person as defined in § 238.5, including a contractor for a railroad, who performs any function covered by this part must perform that function in accordance with this part.

§ 238.11 -- Penalties.

(a) Any person, as defined in § 238.5, who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least $500 and not more than $11,000 per violation, except that: Penalties may be assessed against individuals only for willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed $22,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. See Appendix A to this part for a statement of agency civil penalty policy.

(b) Any person who knowingly and willfully falsifies a record or report required by this part may be subject to criminal penalties under 49 U.S.C. 21311.

§ 238.13 -- Preemptive effect.

Under 49 U.S.C. 20106, issuance of the regulations in this part preempts any State law, regulation, or order covering the same subject matter, except an additional or more stringent law, regulation, or order that is necessary to eliminate or reduce an essentially local safety hazard; that is not incompatible with a law, regulation, or order of the United States Government; and that does not unreasonably burden interstate commerce.

§ 238.15 -- Movement of passenger equipment with power brake defects.

Beginning January 1, 2002 the following provisions of this section apply to railroads operating Tier I passenger equipment covered by this part. A railroad may request earlier application of these requirements upon written notification to FRA’s Associate Administrator for Safety as provided in § 238.1(c) of this part.

(a) General. This section contains the requirements for moving passenger equipment with a power brake defect without liability for a civil penalty under this part. Railroads remain liable for the movement of passenger equipment under 49 U.S.C. 20303(c). For purposes of this section, § 238.17, and § 238.503, a "power brake defect" is a condition
of a power brake component, or other primary brake component, that does not conform with this part. (Passenger cars and other passenger equipment classified as locomotives under part 229 of this chapter are also covered by the movement restrictions contained in § 229.9 of this chapter for those defective conditions covered by part 229 of this chapter.)

(b) Limitations on movement of passenger equipment containing a power brake defect found during a Class I or IA brake test. Except as provided in paragraph (c) of this section (which addresses brakes that become defective en route after a Class I or IA brake test was performed), a commuter or passenger train that has in its consist passenger equipment containing a power brake defect found during a Class I or IA brake test (or, for Tier II trains, the equivalent) is performed may only be moved, without civil penalty liability under this part-

(1) If all of the following conditions are met:
   (i) The train is moved for purposes of repair, without passengers;
   (ii) The applicable operating restrictions in paragraphs (d) and (e) of this section are observed; and
   (iii) The passenger equipment is tagged, or information is recorded, as prescribed in paragraph (c)(2) of this section; or

(2) If the train is moved for purposes of scrapping or sale of the passenger equipment that has the power brake defect and all of the following conditions are met:
   (i) The train is moved without passengers;
   (ii) The movement is at a speed of 15 mph or less; and
   (iii) The movement conforms with the railroad's air brake or power brake instructions.

(c) Limitations on movement of passenger equipment in passenger service that becomes defective en route after a Class I or IA brake test. Passenger equipment hauled or used in service in a commuter or passenger train that develops an inoperative or ineffective powerbrakes or any brake defect while en route to another location after receiving a Class I or IA brake test (or, for Tier II trains, the equivalent) may be hauled or used by a railroad for repair, without civil penalty liability under this part, if the applicable operating restrictions set forth in paragraphs (d) and (e) of this section are complied with and all of the following requisites are satisfied:

(1) En route defect. At the time of the train's Class I or IA brake test, the passenger equipment in the train was properly equipped with power brakes that comply with this part. The power brakes on the passenger equipment become defective while it is en route to another location.

(2) Record. A tag or card is placed on both sides of the defective passenger equipment, or an automated tracking system is provided, with the following information about the defective passenger equipment:
   (i) The reporting mark and car or locomotive number;
   (ii) The name of the inspecting railroad;
   (iii) The name of the inspector;
   (iv) The inspection location and date;
   (v) The nature of each defect;
   (vi) The destination of the equipment where it will be repaired; and
   (vii) The signature, if possible, and job title of the person reporting the defective condition.

(3) Automated tracking system. Automated tracking systems used to meet the tagging requirements contained in paragraph (c)(2) of this section may be reviewed and
monitored by FRA at any time to ensure the integrity of the system. FRA's Associate Administrator for Safety may prohibit or revoke a railroad's ability to utilize an automated tracking system in lieu of tagging if FRA finds that the automated tracking system is not properly secure, is inaccessible to FRA or a railroad's employees, or fails to adequately track or monitor the movement of defective equipment. Such a determination will be made in writing and will state the basis for such action.

(4) Conditional requirement. In addition, if an en route failure causes power brakes to be cut out or renders the brake inoperative on passenger equipment, the railroad shall:

(i) Determine the percentage of operative power brakes in the train based on the number of brakes known to be cut out or otherwise inoperative, using the formula specified in paragraph (d)(1) of this section;
(ii) Notify the person responsible for the movement of trains of the percent of operative brakes and movement restrictions on the train imposed by paragraph (d) of this section;
(iii) Notify the mechanical department of the failure; and
(iv) Confirm the percentage of operative brakes by a walking inspection at the next location where the railroad reasonably judges that it is safe to do so.

(d) Operating restrictions based on percent operative power brakes in train.

(1) Computation of percent operative power brakes.

(i) Except as specified in paragraphs (d)(1)(ii) and (iii) of this section, the percentage of operative power brakes in a train shall be determined by dividing the number of axles in the train with operative power brakes by the total number of axles in the train.
(ii) For trains equipped with tread brake units (TBUs), the percentage of operative power brakes shall be determined by dividing the number of operative TBUs by the total number of TBUs in the train.
(iii) Each cut-out axle on a locomotive that weighs more than 200,000 pounds shall be counted as two cut-out axles for the purposes of calculating the percentage of operative brakes. Unless otherwise specified by the railroad, the friction braking effort over all other axles shall be considered uniform.
(iv) The following brake conditions not in compliance with this part are not considered inoperative power brakes for purposes of this section:
   (A) Failure or cutting out of secondary brake systems
   (B) Inoperative or otherwise defective handbrakes or parking brakes;
   (C) Piston travel that is in excess of the Class I brake test limits required in § 238.313 but that does not exceed the maximum prescribed limits for considering the brakes to be effective; and
   (D) Power brakes overdue for inspection, testing, maintenance, or stenciling under this part.

(2) All passenger trains developing 50-74 percent operative power brakes. A passenger train that develops inoperative power brake equipment resulting in at least 50 percent but less than 75 percent operative power brakes may be used only as follows:
(i) The train may be moved in passenger service only to the next forward passenger station;
(ii) The speed of the train shall be restricted to 20 mph or less; and
(iii) After all passengers are discharged, the defective equipment shall be moved to the nearest location where the necessary repairs can be made.

(3) *Commuter, short-distance intercity, and short-distance Tier II passenger trains developing 75-99 percent operative power brakes.*

(i) *75-84 percent operative brakes.* Commuter, short-distance intercity, and short-distance Tier II passenger trains which develop inoperative power brake equipment resulting in at least 75 percent but less than 85 percent operative brakes may be used only as follows:

(A) The train may be moved in passenger service only to the next forward location where the necessary repairs can be made; however, if the next forward location where the necessary repairs can be made does not have the facilities to handle the safe unloading of passengers, the train may be moved past the repair location in service only to the next forward passenger station in order to facilitate the unloading of passengers; and

(B) The speed of the train shall be restricted to 50 percent of the train's maximum allowable speed or 40 mph, whichever is less; and

(C) After all passengers are discharged, the defective equipment shall be moved to the nearest location where the necessary repairs can be made.

(ii) *85-99 percent operative brakes.* Commuter, short-distance intercity, and short-distance Tier II passenger trains which develop inoperative power brake equipment resulting in at least 85 percent but less than 100 percent operative brakes may only be used as follows:

(A) The train may be moved in passenger service only to the next forward location where the necessary repairs can be made; however, if the next forward location where the necessary repairs can be made does not have the facilities to handle the safe unloading of passengers, the train may be moved past the repair location in service only to the next forward passenger station in order to facilitate the unloading of passengers; and

(B) After all passengers are discharged, the defective equipment shall be moved to the nearest location where the necessary repairs can be made.

(4) *Long-distance intercity and long-distance Tier II passenger trains developing 75-99 operative power brakes.*

(i) *75-84 percent operative brakes.* Long-distance intercity and long-distance Tier II passenger trains which develop inoperative power brake equipment resulting in at least 75 percent but less than 85 percent operative brakes may be used only if all of the following restrictions are observed:

(A) The train may be moved in passenger service only to the next forward repair location identified for repair of that equipment by the railroad operating the equipment in the list required by § 238.19(d); however, if the next forward repair location does not have the facilities to handle the safe unloading of passengers, the train may be moved past the designated repair location in service only to the next forward passenger station in order to facilitate the unloading of passengers; and

(B) The speed of the train shall be restricted to 50 percent of the train's maximum allowable speed or 40 mph, whichever is less; and
(C) After all passengers are discharged, the defective equipment shall be moved to the nearest location where the necessary repairs can be made.

(ii) **85-99 percent operative brakes.** Long-distance intercity and long-distance Tier II passenger trains which develop inoperative power brake equipment resulting in at least 85 percent but less than 100 percent operative brakes may be used only if all of the following restrictions are observed:

(A) The train may be moved in passenger service only to the next forward repair location identified for repair of that equipment by the railroad operating the equipment in the list required by § 238.19(d); however, if the next forward repair location does not have the facilities to handle the safe unloading of passengers, the train may be moved past the designated repair location in service only to the next forward passenger station in order to facilitate the unloading of passengers; and

(B) After all passengers are discharged, the defective equipment shall be moved to the nearest location where the necessary repairs can be made.

(e) **Operating restrictions on passenger trains with inoperative power brakes on the front or rear unit.** If the power brakes on the front or rear unit in any passenger train are completely inoperative the following shall apply:

(1) If the handbrake is located inside the interior of the car:
   (i) A qualified person shall be stationed at the handbrake on the unit;
   (ii) The car shall be locked-out and empty except for the railroad employee manning the handbrake; and
   (iii) Appropriate speed restrictions shall be placed on the train by a qualified person;

(2) If the handbrake is located outside the interior of the car or is inaccessible to a qualified person:
   (i) The car shall be locked-out and empty;
   (ii) The speed of the train shall be restricted speed to exceed 20 mph or less; and
   (iii) The car shall be removed from the train or repositioned in the train at the first location where it is possible to do so.

(f) **Special Notice for Repair.** Nothing in this section authorizes the movement of passenger equipment subject to a Special Notice for Repair under part 216 of this chapter unless the movement is made in accordance with the restrictions contained in the Special Notice.

§ 238.17 -- Movement of passenger equipment with other than power brake defects.

Beginning January 1, 2002, the following provisions of this section apply to railroads operating Tier I passenger equipment covered by this part. A railroad may request earlier application of these requirements upon written notification to FRA's Associate Administrator for Safety as provided in § 238.1(c) of this part.

(a) **General.** This section contains the requirements for moving passenger equipment with other than a power brake defect. (Passenger cars and other passenger equipment classified as locomotives under part 229 of this chapter are also covered by the
movement restrictions contained in § 229.9 of this chapter for those defective conditions covered by part 229 of this chapter.)

(b) Limitations on movement of passenger equipment containing defects found at time of calendar day inspection. Except as provided in §§ 238.303(e)(15) and 238.305(c)(5), and 238.307(c)(1) passenger equipment containing a condition not in conformity with this part at the time of its calendar day mechanical inspection may be moved from that location for repair if all of the following conditions are satisfied:

1. If the condition involves a running gear defect, the defective equipment is not used in passenger service and is moved in a non-revenue train;
2. If the condition involves a non-running gear defect, the defective equipment may be used in passenger service in a revenue train provided that a qualified maintenance person determines that it is safe to do so, and if so, the car is locked out and empty, and all movement restrictions are observed except that the car may be occupied by a member of the train crew or a railroad employee to the extent necessary to safely operate the train;
3. The requirements of paragraphs (c)(3) and (c)(4) of this section are met; and
4. The special requirements of paragraph (e) of this section, if applicable, are met.

(c) Usual limitations on movement of passenger equipment that develops defects en route. Except as provided in §§ 238.303(e)(15) and 238.503(f), passenger equipment that develops en route to its destination, after its calendar day mechanical inspection was performed and before its next calendar day mechanical inspection is performed, any defect not in compliance with this part, other than a power brake defect, may be moved only if the railroad complies with all of the following requirements and, if applicable, the special requirements in paragraph (e) of this section:

1. Prior to movement of equipment with a potential running gear defect, a qualified maintenance person shall determine if it is safe to move the equipment in passenger service and, if so, the maximum speed and other restrictions necessary for safely conducting the movement. If appropriate, these determinations may be made based upon a description of the defective condition provided by a crewmember. If the determinations required by this paragraph are made by an off-site qualified maintenance person based on a description of the defective condition by on-site personnel, then a qualified maintenance person shall perform a physical inspection of the defective equipment, at the first location possible, to verify the description of the defect provided by the on-site personnel.
2. Prior to movement of equipment with a non-running gear defect, a qualified person or a qualified maintenance person shall determine if it is safe to move the equipment in passenger service and, if so, the maximum speed and other restrictions necessary for safely conducting the movement. If appropriate, these determinations may be made based upon a description of the defective condition provided by the on-site personnel.
3. Prior to movement of any defective equipment, the qualified person or qualified maintenance person shall notify the crewmember in charge of the movement of the defective equipment, who in turn shall inform all other crewmembers of the presence of the defective condition(s) and the maximum speed and other restrictions determined under paragraph (c)(1) or (c)(2) of this section. The movement shall be made in conformance with such restrictions.
4. The railroad shall maintain a record of all defects reported and their subsequent repair in the defect tracking system required in § 238.19. In addition, prior to
movement of the defective equipment, a tag or card placed on both sides of the defective equipment, or an automated tracking system, shall record the following information about the defective equipment:

(i) The reporting mark and car or locomotive number;
(ii) The name of the inspecting railroad;
(iii) The name of the inspector, inspection location, and date;
(iv) The nature of each defect;
(v) Movement restrictions and safety restrictions, if any;
(vi) The destination of the equipment where it will be repaired; and
(vii) The signature, if possible, as well as the job title and location of the person making the determinations required by this section.

(5) *Automated tracking system.* Automated tracking systems used to meet the tagging requirements contained in paragraph (c)(4) of this section may be reviewed and monitored by FRA at any time to ensure the integrity of the system. FRA's Associate Administrator for Safety may prohibit or revoke a railroad's ability to utilize an automated tracking system in lieu of tagging if FRA finds that the automated tracking system is not properly secure, is inaccessible to FRA or a railroad's employees, or fails to adequately track or monitor the movement of defective equipment. Such a determination will be made in writing and will state the basis for such action.

(6) After a qualified maintenance person or a qualified person verifies that the defective equipment is safe to remain in service as required in paragraphs (c)(1) and (c)(2) of this section, the defective equipment that develops a condition not in compliance with this part while en route may continue in passenger service not later than the next calendar day mechanical inspection, if the requirements of this paragraph are otherwise fully met.

(d) *Inspection of roller bearings on equipment involved in a derailment.*

(1) A railroad shall not continue passenger equipment in service that has a roller bearing whose truck was involved in a derailment unless the bearing has been inspected and tested in accordance with the railroad’s procedures for handling defective equipment.

(2) The roller bearing shall be disassembled from the axle and inspected internally if:

(i) It shows any external sign of damage;
(ii) It makes any unusual noise when its wheel set is spun freely (an on-track rolling test is acceptable) or when the bearing is manually rotated;
(iii) Its truck was involved in a derailment at a speed of more than 10 miles per hour; or
(iv) Its truck was dragged on the ground for more than 100 feet.

(e) *Special requisites for movement of passenger equipment with safety appliance defects.* Consistent with 49 U.S.C. 20303, passenger equipment with a safety appliance not in compliance with this part or with part 231 of this chapter, if applicable, may be moved-

(1) If necessary to effect repair of the safety appliance;
(2) From the point where the safety appliance defect was first discovered by the railroad to the nearest available location on the railroad where the necessary repairs required to bring the passenger equipment into compliance can be made or, at the option of the receiving railroad, the equipment may be received and hauled for repair to a point on the receiving railroad's line that is no farther than the point on the delivering railroad's line where the repair of the defect could have been made;
(3) If a tag placed on both sides of the passenger equipment or an automated tracking system contains the information required under paragraph (c)(4) of this section; and

(4) After notification of the crewmember in charge of the movement of the defective equipment, who in turn shall inform all other crewmembers of the presence of the defective condition(s).

(f) Special Notice for Repair. Nothing in this section authorizes the movement of equipment subject to a Special Notice for Repair under part 216 of this chapter unless the movement is made in accordance with the restrictions contained in the Special Notice.

§ 238.19 -- Reporting and tracking repairs to defective passenger equipment.

(a) General. Beginning January 1, 2002 each railroad shall have in place a reporting and tracking system for passenger equipment with a defect not in conformance with this part. A railroad may request earlier application of these requirements upon written notification to FRA's Associate Administrator for Safety as provided in § 238.1(c) of this part. The reporting and tracking system shall record the following information:

1. The identification number of the defective equipment;
2. The date the defect was discovered;
3. The nature of the defect;
4. The determination made by a qualified person or qualified maintenance person on whether the equipment is safe to run;
5. The name of the qualified person or qualified maintenance person making such a determination;
6. Any operating restrictions placed on the equipment; and
7. Repairs made and the date that they were made.

(b) Retention of records. At a minimum, each railroad shall keep the records described in paragraph (a) of this section for one periodic maintenance interval for each specific type of equipment as described in the railroad's inspection, testing, and maintenance plan required by § 238.107. FRA strongly encourages railroads to keep these records for longer periods of time because they form the basis for future reliability-based decisions concerning test and maintenance intervals that may be developed pursuant to § 238.307(b).

(c) Availability of records. Railroads shall make defect reporting and tracking records available to FRA upon request.

(d) List of power brake repair points. Railroads operating long-distance intercity and long-distance Tier II passenger equipment shall designate locations, in writing, where repairs to passenger equipment with a power brake defect will be made and shall provide the list to FRA's Associate Administrator for Safety and make it available to FRA for inspection and copying upon request. Railroads operating these trains shall designate a sufficient number of repair locations to ensure the safe and timely repair of passenger equipment. These designations shall not be changed without at least 30 days' advance written notice to FRA's Associate Administrator for Safety.

§ 238.21 -- Special approval procedure.

(a) General. The following procedures govern consideration and action upon requests for special approval of alternative standards under §§ 238.103, 238.223, 238.309, 238.311, 238.405, or 238.427; for approval of alternative compliance under § 238.201; and for special approval of pre-revenue service acceptance testing plans as
required by § 238.111. (Requests for approval of programs for the inspection, testing, and maintenance of Tier II passenger equipment are governed by § 238.505.)

(b) **Petitions for special approval of alternative standard.** Each petition for special approval of an alternative standard shall contain-

1. The name, title, address, and telephone number of the primary person to be contacted with regard to review of the petition;
2. The alternative proposed, in detail, to be substituted for the particular requirements of this part;
3. Appropriate data or analysis, or both, establishing that the alternative will provide at least an equivalent level of safety; and
4. A statement affirming that the railroad has served a copy of the petition on designated representatives of its employees, together with a list of the names and addresses of the persons served.

(c) **Petitions for special approval of alternative compliance.** Each petition for special approval of alternative compliance shall contain-

1. The name, title, address, and telephone number of the primary person to be contacted with regard to the petition;
2. The elements prescribed in § 238.201(b); and
3. A statement affirming that the railroad has served a copy of the petition on designated representatives of its employees, together with a list of the names and addresses of the persons served.

(d) **Petitions for special approval of pre-revenue service acceptance testing plan.**

1. Each petition for special approval of a pre-revenue service acceptance testing plan shall contain-
   (i) The name, title, address, and telephone number of the primary person to be contacted with regard to review of the petition; and
   (ii) The elements prescribed in § 238.111.
2. Three copies of each petition for special approval of the pre-revenue service acceptance testing plan shall be submitted to the Associate Administrator for Safety, Federal Railroad Administration, 1120 Vermont Ave., N.W., Mail Stop 25, Washington, D.C. 20590.

(e) **Federal Register notice.** FRA will publish a notice in the Federal Register concerning each petition under paragraphs (b) and (c) of this section.

(f) **Comment.** Not later than 30 days from the date of publication of the notice in the Federal Register concerning a petition under paragraphs (b) or (c) of this section, any person may comment on the petition.

1. Each comment shall set forth specifically the basis upon which it is made, and contain a concise statement of the interest of the commenter in the proceeding.
2. Three copies of each comment shall be submitted to the Associate Administrator for Safety, Federal Railroad Administration, 1120 Vermont Ave., Mail Stop 25, Washington, D.C. 20590.
3. The commenter shall certify that a copy of the comment was served on each petitioner.

(g) **Disposition of petitions.**

1. FRA will conduct a hearing on a petition in accordance with the procedures provided in § 211.25 of this chapter.
If FRA finds that the petition complies with the requirements of this section or that the proposed plan is acceptable or changes are justified, or both, the petition will be granted, normally within 90 days of its receipt. If the petition is neither granted nor denied within 90 days, the petition remains pending for decision. FRA may attach special conditions to the approval of the petition. Following the approval of a petition, FRA may reopen consideration of the petition for cause stated.

If FRA finds that the petition does not comply with the requirements of this section, or that the proposed plan is not acceptable or that the proposed changes are not justified, or both, the petition will be denied, normally within 90 days of its receipt.

When FRA grants or denies a petition, or reopens consideration of the petition, written notice is sent to the petitioner and other interested parties.

§ 238.23 -- Information collection.
(a) The information collection requirements of this part were reviewed by the Office of Management and Budget pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et. seq.) and are assigned OMB control number 2130-0544.
(b) The information collection requirements are found in the following sections: §§ 238.1, 238.7, 238.11, 238.15, 238.17, 238.19, 238.21, 238.103, 238.105, 238.107, 238.109, 238.111, 238.201, 238.203, 238.211, 238.223, 238.231, 238.237, 238.301, 238.303, 238.305, 238.307, 238.309, 238.311, 238.313, 238.315, 238.317, 238.403, 238.405, 238.421, 238.423, 238.427, 238.431, 238.437, 238.441, 238.445, 238.447, 238.503, 238.505, and 238.603.

Subpart B--Safety Planning and General Requirements

§ 238.101 -- Scope.
This subpart contains safety planning and general safety requirements for all railroad passenger equipment subject to this part.

§ 238.103 -- Fire safety.
(a) Materials. (1) Materials used in constructing a passenger car or a cab of a locomotive ordered on or after September 8, 2000, or placed in service for the first time on or after September 9, 2002, shall meet the test performance criteria for flammability and smoke emission characteristics as specified in Appendix B to this part, or alternative standards issued or recognized by an expert consensus organization after special approval of FRA under § 238.21.
(2) On or after November 8, 1999, materials introduced in a passenger car or a locomotive cab, as part of any kind of rebuild, refurbishment, or overhaul of the car or cab, shall meet the test performance criteria for flammability and smoke emission characteristics as specified in Appendix B to this part, or alternative standards issued or recognized by an expert consensus organization after special approval of FRA under § 238.21.
(b) Certification. A railroad shall require certification that a representative sample of combustible materials to be-
(1) Used in constructing a passenger car or a locomotive cab, or
(2) Introduced in a passenger car or a locomotive cab, as part of any kind of rebuild, refurbishment, or overhaul of the car or cab, has been tested by a recognized independent testing laboratory and that the results show the representative sample complies with the requirements of paragraph (a) of this section at the time it was tested.

(c) Fire safety analysis for procuring new passenger equipment. In procuring new passenger equipment, each railroad shall ensure that fire safety considerations and features in the design of the equipment reduce the risk of personal injury and equipment damage caused by fire to an acceptable level using MIL-STD-882C as a guide or an alternative, formal safety methodology. To this end, each railroad shall complete a written fire safety analysis for the passenger equipment being procured. In conducting the analysis, the railroad shall-

1. Take effective steps to design the equipment to be sufficiently fire resistant so that fire detection devices permit evacuation of all passengers and crewmembers before fire, smoke, or toxic fumes cause injury to any passenger or crewmember.

2. Identify, analyze, and prioritize the fire hazards inherent in the design of the equipment.

3. Reasonably ensure that a ventilation system in the equipment does not contribute to the lethality of a fire.

4. Identify in writing any train component that is a risk of initiating fire and which requires overheat protection. An overheat detector shall be installed in any component when the analysis determines that an overheat detector is necessary.

5. Identify in writing any unoccupied train compartment that contains equipment or material that poses a fire hazard, and analyze the benefit provided by including a fire or smoke detection system in each compartment so identified. A fire or smoke detector shall be installed in any unoccupied compartment when the analysis determines that such equipment is necessary to ensure sufficient time for the safe evacuation of passengers and crewmembers from the train. For purposes of this section, an unoccupied train compartment means any part of the equipment structure that is not normally occupied during operation of the train, including a closet, baggage compartment, food pantry, etc.

6. Determine whether any occupied or unoccupied space requires a portable fire extinguisher and, if so, the proper type and size of the fire extinguisher for each location. As required by § 239.101 of this chapter, each passenger car is required to have a minimum of one portable fire extinguisher. If the analysis performed indicates that one or more additional portable fire extinguishers are needed, such shall be installed.

7. On a case-by-case basis, the railroad shall analyze the benefit provided by including a fixed, automatic fire-suppression system in any unoccupied train compartment that contains equipment or material that poses a fire hazard, and determine the proper type and size of the automatic fire-suppression system for each location. A fixed, automatic fire suppression system shall be installed in any unoccupied compartment when the analysis determines that such equipment is practical and necessary to ensure sufficient time for the safe evacuation of passengers and crewmembers from the train.

8. Describe the analysis and testing necessary to-

   (i) Demonstrate that the fire protection approach taken in the design of the equipment will meet the fire protection requirements of this part, and

   (ii) Select materials which help provide sufficient fire resistance to reasonably ensure adequate time to detect a fire and safely evacuate the passengers and crewmembers.
(9) Explain how safety issues are resolved in relation to cost and performance issues in the design of the equipment to reduce the risk of each fire hazard.

(d) Fire safety analysis for existing passenger equipment. (1) Not later than July 10, 2000, each passenger railroad shall complete a preliminary fire safety analysis for each category of existing rail equipment and current rail service.

(2) Not later than July 10, 2001, each such railroad shall-

(i) Complete a final fire safety analysis for any category of existing passenger equipment and service evaluated during the preliminary fire safety analysis as likely presenting an unacceptable risk of personal injury. In conducting the analysis, the railroad shall consider the extent to which materials comply with the test performance criteria for flammability and smoke emission characteristics as specified in Appendix B to this part or alternative standards approved by FRA under this part.

(ii) Take remedial action to reduce the risk of personal injuries to an acceptable level in any such category, if the railroad finds the risk to be unacceptable. In considering remedial action, a railroad is not required to replace material found not to comply with the test performance criteria for flammability and smoke emission characteristics required by this part, if:

(A) The risk of personal injuries from the material is negligible based on the railroad's operating environment and the material's size, or location, or both; or

(B) The railroad takes alternative action which reduces the risk of personal injuries to an acceptable level.

(3) Not later than July 10, 2003, each such railroad shall-

(i) Complete a fire safety analysis for all categories of equipment and service. In completing this analysis, the railroad shall, as far as practicable, determine the extent to which remaining materials comply with the test performance criteria for flammability and smoke emission characteristics as specified in Appendix B to this part or alternative standards approved by FRA under this part.

(ii) Take remedial action to reduce the risk of personal injuries to an acceptable level in any such category, if the railroad finds the risk to be unacceptable. In considering remedial action, a railroad is not required to replace material found not to comply with the test performance criteria for flammability and smoke emission characteristics required by this part, if:

(A) The risk of personal injuries from the material is negligible based on the railroad's operating environment and the material's size, or location, or both; or

(B) The railroad takes alternative action which reduces the risk of personal injuries to an acceptable level.

(4) Where possible prior to transferring existing equipment to a new category of service, but in no case more than 90 days following such a transfer, the passenger railroad shall complete a new fire safety analysis taking into consideration the change in railroad operations and shall effect prompt action to reduce any identified risk to an acceptable level.

(5) As used in this paragraph, "category of rail equipment and current rail service" shall be determined by the railroad based on relevant fire safety risks, including available ignition sources, presence or absence of heat/smoke detection systems, known variations
from the required material test performance criteria or alternative standards approved by FRA, and availability of rapid and safe egress to the exterior of the vehicle under conditions secure from fire, smoke, and other hazards.

(e) **Inspection, testing, and maintenance.** Each railroad shall develop and adopt written procedures for the inspection, testing, and maintenance of all fire safety systems and fire safety equipment on the passenger equipment it operates. The railroad shall comply with those procedures that it designates as mandatory for the safety of the equipment and its occupants.

§ 238.105 -- **Train electronic hardware and software safety.**

The requirements of this section apply to electronic hardware and software used to control or monitor safety functions in passenger equipment ordered on or after September 8, 2000, and such components implemented or materially modified in new or existing passenger equipment on or after September 9, 2002.

(a) The railroad shall develop and maintain a written hardware and software safety program to guide the design, development, testing, integration, and verification of software and hardware that controls or monitors equipment safety functions.

(b) The hardware and software safety program shall be based on a formal safety methodology that includes a Failure Modes, Effects, Criticality Analysis (FMECA); verification and validation testing for all hardware and software components and their interfaces; and comprehensive hardware and software integration testing to ensure that the software functions as intended.

(c) The hardware and software safety program shall include a description of how the following will be accomplished, achieved, carried out, or implemented to ensure safety and reliability:

(1) The hardware and software design process;
(2) The hardware and software design documentation;
(3) The hardware and software hazard analysis;
(4) Hardware and software safety reviews;
(5) Hardware and software hazard monitoring and tracking;
(6) Hardware and software integration safety testing; and
(7) Demonstration of overall hardware and software system safety as part of the pre-revenue service testing of the equipment.

(d) (1) Hardware and software that controls or monitors a train's primary braking system shall either:

   (i) Fail safely by initiating a full service brake application in the event of a hardware or software failure that could impair the ability of the engineer to apply or release the brakes; or
   (ii) Access to direct manual control of the primary braking system (both service and emergency braking) shall be provided to the engineer.

(2) Hardware and software that controls or monitors the ability to shut down a train's main power and fuel intake system shall either:

   (i) Fail safely by shutting down the main power and cutting off the intake of fuel in the event of a hardware or software failure that could impair the ability of the train crew to command that electronic function; or
   (ii) The ability to shut down the main power and fuel intake by non-electronic means shall be provided to the train crew.
The railroad shall comply with the elements of its hardware and software safety program that affect the safety of the passenger equipment.

§ 238.107 -- Inspection, testing, and maintenance plan.
(a) General. Beginning January 1, 2002, the following provisions of this section apply to railroads operating Tier I passenger equipment covered by this part. A railroad may request earlier application of these requirements upon written notification to FRA's Associate Administrator for Safety as provided in § 238.1(c).
(b) Each railroad shall develop, and provide to FRA upon request, a detailed inspection, testing, and maintenance plan consistent with the requirements of this part. This plan shall include a detailed description of the following:
   (1) Inspection procedures, intervals, and criteria;
   (2) Test procedures and intervals;
   (3) Scheduled preventive maintenance intervals;
   (4) Maintenance procedures; and
   (5) Special testing equipment or measuring devices required to perform inspections and tests.
(c) The inspection, testing, and maintenance plan required by this section is not intended to address and should not include procedures to address employee working conditions that arise in the course of conducting the inspections, tests, and maintenance set forth in the plan. When requesting a copy of the railroad's plan, FRA does not intend to review any portion of the plan that relates to employee working conditions.
(d) The inspection, testing, and maintenance plan required by this section shall be reviewed by the railroad annually.

§ 238.109 -- Training, qualification, and designation program.
(a) Beginning January 1, 2002, each railroad shall have adopted a training, qualification, and designation program for employees and contractors that perform safety-related inspections, tests, or maintenance of passenger equipment, and trained such employees and contractors in accordance with the program. A railroad may request earlier application of these requirements upon written notification to FRA's Associate Administrator for Safety as provided in § 238.1(c). For purposes of this section, a "contractor" is defined as a person under contract with the railroad or an employee of a person under contract with the railroad to perform any of the tasks required by this part.
(b) As part of this program, the railroad shall, at a minimum:
   (1) Identify the tasks related to the inspection, testing, and maintenance required by this part that must be performed on each type of equipment that the railroad operates;
   (2) Develop written procedures for the performance of the tasks identified in paragraph (b)(1) of this section;
   (3) Identify the skills and knowledge necessary to perform each task identified in paragraph (b)(1) of this section;
   (4) Adopt a training curriculum that includes classroom and "hands-on" lessons designed to impart the skills and knowledge identified as necessary to perform each task identified in paragraph (b)(1) of this section. The training curriculum shall specifically address the Federal regulatory requirements contained in this part that are related to the performance of the tasks identified;
   (5) Require all employees and contractors to successfully complete the training course that covers the equipment and tasks for which they are responsible that are
required by this part as well as the specific Federal regulatory requirements contained in this part related to equipment and tasks for which they are responsible;

(6) Require all employees and contractors to pass either a written or an oral examination covering the equipment and tasks for which they are responsible that are required by this part as well as the specific Federal regulatory requirements contained in this part related to equipment and tasks for which they are responsible;

(7) Require all employees and contractors to individually demonstrate "hands-on" capability to successfully perform the tasks required by this part that must be performed as part of their duties on the type equipment to which they are assigned;

(8) Require supervisors to complete the program that covers the employees whom they supervise, including refresher training;

(9) Require supervisors to exercise oversight to ensure that all the identified tasks are performed in accordance with the railroad's written procedures;

(10) Designate in writing that each employee and contractor has the knowledge and skills necessary to perform the safety-related tasks that are part of his or her job;

(11) Require periodic refresher training, at an interval not to exceed three years, that includes classroom and "hands-on" training, as well as testing; except, employees and contractors that have completed their initial training under this part prior to January 1, 2002, shall not be required to complete their first periodic refresher training until four years after the completion of their initial training, and every three years thereafter;

(12) Add new equipment to the qualification and designation program prior to its introduction to revenue service; and

(13) Maintain records adequate to demonstrate that each employee and contractor performing safety-related tasks on passenger equipment is currently qualified to do so. These records shall be adequate to distinguish the qualifications of the employee or contractor as a qualified person or as a qualified maintenance person.

§ 238.111 -- Pre-revenue service acceptance testing plan.

(a) Passenger equipment that has previously been used in revenue service in the United States. For passenger equipment that has previously been used in revenue service in the United States, each railroad shall test the equipment on its system prior to placing such equipment in revenue service for the first time on its railroad to ensure the compatibility of the equipment with the railroad's operating system (including the track, and signal system). A description of such testing shall be retained by the railroad and made available to FRA for inspection and copying upon request. For purposes of this paragraph, passenger equipment that has previously been used in revenue service in the United States means:

(1) The actual equipment used in such service;

(2) Equipment manufactured identically to that actual equipment; and

(3) Equipment manufactured similarly to that actual equipment with no material differences in safety-critical components or systems.

(b) Passenger equipment that has not been used in revenue service in the United States. Before using passenger equipment for the first time on its system that has not been used in revenue service in the United States, each railroad shall:

(1) Prepare a pre-revenue service acceptance testing plan for the equipment which contains the following elements:
(i) An identification of any waivers of FRA or other Federal safety regulations required for the testing or for revenue service operation of the equipment;
(ii) A clear statement of the test objectives. One of the principal test objectives shall be to demonstrate that the equipment meets the safety requirements specified in this part when operated in the environment in which it is to be used;
(iii) A planned schedule for conducting the testing;
(iv) A description of the railroad property or facilities to be used to conduct the testing;
(v) A detailed description of how the testing is to be conducted, including a description of the criteria to be used to evaluate the equipment's performance;
(vi) A description of how the test results are to be recorded;
(vii) A description of any special instrumentation to be used during the tests;
(viii) A description of the information or data to be obtained;
(ix) A description of how the information or data obtained is to be analyzed or used;
(x) A description of any criteria to be used as safety limits during the testing;
(xi) A description of the criteria to be used to measure or determine the success or failure of the tests. If acceptance is to be based on extrapolation of less than full-level testing results, the analysis to be done to justify the validity of the extrapolation shall be described;
(xii) Quality control procedures to ensure that the inspection, testing, and maintenance procedures are followed;
(xiii) Criteria to be used for the revenue service operation of the equipment; and
(xiv) A description of any testing of the equipment that has previously been performed.
(2) Submit a copy of the plan to FRA at least 30 days prior to testing the equipment and include with that submission notification of the times and places of the pre-revenue service tests to permit FRA observation of such tests. For Tier II passenger equipment, the railroad shall obtain FRA approval of the plan under the procedures specified in § 238.21.
(3) Comply with the plan, including fully executing the tests required by the plan.
(4) Document in writing the results of the tests. For Tier II passenger equipment, the railroad shall report the results of the tests to the FRA Associate Administrator for Safety at least 90 days prior to its intended operation of the equipment in revenue service.
(5) Correct any safety deficiencies identified in the design of the equipment or in the inspection, testing, and maintenance procedures, uncovered during the testing. If safety deficiencies cannot be corrected by design changes, the railroad shall impose operational limitations on the revenue service operation of the equipment that are designed to ensure that the equipment can operate safely. For Tier II passenger equipment, the railroad shall comply with any operational limitations imposed by the FRA Associate Administrator for Safety on the revenue service operation of the equipment for cause stated following FRA review of the results of the test program. This
section does not restrict a railroad from petitioning FRA for a waiver of a safety regulation under the procedures specified in part 211 of this chapter.

(6) Make the plan and documentation kept pursuant to that plan available for inspection and copying by FRA upon request.

(7) For Tier II passenger equipment, obtain approval from the FRA Associate Administrator for Safety prior to placing the equipment in revenue service. The Associate Administrator grants such approval upon a showing of the railroad's compliance with the applicable requirements of this part.

(c) If a railroad plans a major upgrade or introduction of new technology on Tier II passenger equipment that has been used in revenue service in the United States and that affects a safety system on such equipment, the railroad shall follow the procedures specified in paragraph (b) of this section prior to placing the equipment in revenue service with such a major upgrade or introduction of new technology.

§ 238.113 -- Emergency window exits.

(a) The following requirements apply on or after November 8, 1999-

(1) Each passenger car shall have a minimum of four emergency window exits, either in a staggered configuration where practical or with one exit located in each end of each side of the passenger car. If the passenger car has multiple levels, each main level shall have a minimum of four emergency window exits, either in a staggered configuration where practical or with one exit located in each end of each side on each level.

(2) Each sleeping car, and any similarly designed car having a number of separate compartments intended to be occupied by passengers or train crewmembers, shall have at least one emergency window exit in each compartment.

(3) Each emergency window exit shall be designed to permit rapid and easy removal from the inside of the car during an emergency situation without requiring the use of a tool or other implement.

(b) Each emergency window exit in a passenger car, including a sleeper car, ordered on or after September 8, 2000, or placed in service for the first time on or after September 9, 2002, shall have an unobstructed opening with minimum dimensions of 26 inches horizontally by 24 inches vertically. A seat back is not an obstruction if it can be moved away from the window opening without requiring the use of a tool or other implement.

(c) Emergency window exits shall be marked, and instructions provided for their use, as required by § 223.9(d) of this chapter.

§ 238.115 -- Emergency lighting.

(a) This section applies to each passenger car ordered on or after September 8, 2000, or placed in service for the first time on or after September 9, 2002. This section applies to each level of a multi-level passenger car.

(b) Emergency lighting shall be provided in each passenger car and shall include the following:

(1) A minimum, average illumination level of 1 foot-candle measured at floor level adjacent to each exterior door and each interior door providing access to an exterior door (such as a door opening into a vestibule);

(2) A minimum, average illumination level of 1 foot-candle measured 25 inches above floor level along the center of each aisle and passageway;
(3) A minimum illumination level of 0.1 foot-candle measured 25 inches above floor level at any point along the center of each aisle and passageway; and

(4) A back-up power system capable of:
   (i) Operating in all equipment orientations within 45 degrees of vertical;
   (ii) Operating after the initial shock of a collision or derailment resulting in the following individually applied accelerations:
      (A) Longitudinal: 8g;
      (B) Lateral: 4g; and
      (C) Vertical: 4g; and
   (iii) Operating all emergency lighting for a period of at least 90 minutes without a loss of more than 40% of the minimum illumination levels specified in this paragraph (b).

§ 238.117 -- Protection against personal injury.

On or after November 8, 1999, all moving parts, high voltage equipment, electrical conductors and switches, and pipes carrying hot fluids or gases on all passenger equipment shall be appropriately equipped with interlocks or guards to minimize the risk of personal injury. This section does not apply to the interior of a private car.

§ 238.119 -- Rim-stamped straight-plate wheels.

(a) (1) Except as provided in paragraph (a)(2) of this section, on or after November 8, 1999, no railroad shall place or continue in service any vehicle, other than a private car, that is equipped with a rim-stamped straight-plate wheel if a brake shoe acts on the tread of the wheel for the purpose of slowing the vehicle.

   (2) A commuter railroad may continue in service a vehicle equipped with a Class A, rim-stamped straight-plate wheel mounted on an inboard-bearing axle until the railroad exhausts its replacement stock of wheels held as of May 12, 1999, provided the railroad does not modify the operation of the vehicle in any way that would result in increased thermal input to the wheel during braking.

(b) A rim-stamped straight-plate wheel shall not be used as a replacement wheel on a private car that operates in a passenger train if a brake shoe acts on the tread of the wheel for the purpose of slowing the car.

(c) The requirements of this section do not apply to a wheel that is periodically tread-braked for a short duration by automatic circuitry for the sole purpose of cleaning the wheel tread surface.
Subpart C--Specific Requirements for Tier I Passenger Equipment

§ 238.201 -- Scope/alternative compliance.
(a) **Scope.** (1) This subpart contains requirements for railroad passenger equipment operating at speeds not exceeding 49 U.S.C. chapter 203 125 miles per hour. As stated in § 238.229, all such passenger equipment remains subject to the safety appliance requirements contained in Federal statute at and in FRA regulations at part 231 and § 232.2 of this chapter. Unless otherwise specified, these requirements only apply to passenger equipment ordered on or after September 8, 2000 or placed in service for the first time on or after September 9, 2002.

(2) The structural standards of this subpart (§ 238.203-static end strength; § 238.205-anti-climbing mechanism; § 238.207-link between coupling mechanism and car body; § 238.209-forward-facing end structure of locomotives; § 238.211-collision posts; § 238.213-corner posts; § 238.215-rollover strength; § 238.217-side structure; § 238.219-truck-to-car-body attachment; and § 238.223-locomotive fuel tanks) do not apply to passenger equipment if used exclusively on a rail line:

(i) With no public highway-rail grade crossings;
(ii) On which no freight operations occur at any time;
(iii) On which only passenger equipment of compatible design is utilized;

and

(iv) On which trains operate at speeds not exceeding 79 mph.

(b) **Alternative compliance.** Passenger equipment of special design shall be deemed to comply with this subpart, other than § 238.203, for the service environment in which the petitioner proposes to operate the equipment if the FRA Associate Administrator for Safety determines under paragraph (c) of this section that the equipment provides at least an equivalent level of safety in such environment with respect to the protection of its occupants from serious injury in the case of a derailment or collision. In making a determination under paragraph (c) the Associate Administrator shall consider, as a whole, all of those elements of casualty prevention or mitigation relevant to the integrity of the equipment that are addressed by the requirements of this subpart.

(c) (1) The Associate Administrator may only make a finding of equivalent safety and compliance with this subpart, other than § 238.203, based upon a submission of data and analysis sufficient to support that determination. The petition shall include:

(i) The information required by § 238.21(c);
(ii) Information, including detailed drawings and materials specifications, sufficient to describe the actual construction of the equipment of special design;
(iii) Engineering analysis sufficient to describe the likely performance of the equipment in derailment and collision scenarios pertinent to the safety requirements for which compliance is required and for which the equipment does not conform to the specific requirements of this subpart; and

(iv) A quantitative risk assessment, incorporating the design information and engineering analysis described in this paragraph, demonstrating that the equipment, as utilized in the service environment for which recognition is sought, presents no greater hazard of serious personal injury than equipment that conforms to the specific requirements of this subpart.

(2) Any petition made under this paragraph is subject to the procedures set forth in § 238.21, and will be disposed of in accordance with § 238.21(g).
§ 238.203 -- Static end strength.

(a)  (1) Except as further specified in this paragraph or in paragraph (d), on or after November 8, 1999 all passenger equipment shall resist a minimum static end load of 800,000 pounds applied on the line of draft without permanent deformation of the body structure.

(2) For a passenger car or a locomotive, the static end strength of unoccupied volumes may be less than 800,000 pounds if:

   (i) Energy absorbing structures are used as part of a crash energy management design of the passenger car or locomotive, and

   (ii) The passenger car or locomotive resists a minimum static end load of 800,000 pounds applied on the line of draft at the ends of its occupied volume without permanent deformation of the body structure.

(3) For a locomotive placed in service prior to November 8, 1999, as an alternative to resisting a minimum static end load of 800,000 pounds applied on the line of draft without permanent deformation of the body structure, the locomotive shall resist a horizontal load of 1,000,000 pounds applied along the longitudinal center line of the locomotive at a point on the buffer beam construction 12 inches above the center line of draft without permanent deformation of the body structure. The application of this load shall not be distributed over an area greater than 6 inches by 24 inches. The alternative specified in this paragraph is not applicable to a cab car or an MU locomotive.

(4) The requirements of this paragraph do not apply to:

   (i) A private car; or

   (ii) Unoccupied passenger equipment operating at the rear of a passenger train.

(b)  Passenger equipment placed in service before November 8, 1999 is presumed to comply with the requirements of paragraph (a)(1) of this section, unless the railroad operating the equipment has knowledge, or FRA makes a showing, that such passenger equipment was not built to the requirements specified in paragraph (a)(1).

(c)  When overloaded in compression, the body structure of passenger equipment shall be designed, to the maximum extent possible, to fail by buckling or crushing, or both, of structural members rather than by fracture of structural members or failure of structural connections.

(d)  Grandfathering of non-compliant equipment for use on a specified rail line or lines.

   (1) Grandfathering approval is equipment and line specific. Grandfathering approval of non-compliant equipment under this paragraph is limited to usage of the equipment on a particular rail line or lines. Before grandfathered equipment can be used on another rail line, a railroad must file and secure approval of a grandfathering petition under paragraph (d)(3) of this section.

   (2) Temporary usage of non-compliant equipment. Any passenger equipment placed in service on a rail line or lines before November 8, 1999 that does not comply with the requirements of paragraph (a)(1) may continue to be operated on that particular line or (those particular lines) if the operator of the equipment files a petition seeking grandfathering approval under paragraph (d)(3) before November 8, 1999. Such usage may continue while the petition is being processed, but in no event later than May 8, 2000, unless the petition is approved.

   (3) Petitions for grandfathering. Petitions for grandfathering shall include:
(i) The name, title, address, and telephone number of the primary person to be contacted with respect to the petition;

(ii) Information, including detailed drawings and material specifications, sufficient to describe the actual construction of the equipment;

(iii) Engineering analysis sufficient to describe the likely performance of the static end strength of the equipment and the likely performance of the equipment in derailment and collision scenarios pertinent to the equipment's static end strength;

(iv) A description of risk mitigation measures that will be employed in connection with the usage of the equipment on a specified rail line or lines to decrease the likelihood of accidents involving the use of the equipment; and

(v) A quantitative risk assessment, incorporating the design information, engineering analysis, and risk mitigation measures described in this paragraph, demonstrating that the use of the equipment, as utilized in the service environment for which recognition is sought, is in the public interest and is consistent with railroad safety.

(e) Service. Three copies of each petition shall be submitted to the Associate Administrator for Safety, Federal Railroad Administration, 1120 Vermont Ave., Mail Stop 25, Washington, D.C. 20590.

(f) Federal Register notice. FRA will publish a notice in the Federal Register concerning each petition under paragraph (d) of this section.

(g) Comment. Not later than 30 days from the date of publication of the notice in the Federal Register concerning a petition under paragraph (d) of this section, any person may comment on the petition.

1. Each comment shall set forth specifically the basis upon which it is made, and contain a concise statement of the interest of the commenter in the proceeding.

2. Three copies of each comment shall be submitted to the Associate Administrator for Safety, Federal Railroad Administration, 1120 Vermont Ave., Mail Stop 25, Washington, D.C. 20590.

3. The commenter shall certify that a copy of the comment was served on each petitioner.

(h) Disposition of petitions.

1. If the Administrator finds it necessary or desirable, FRA will conduct a hearing on a petition in accordance with the procedures provided in § 211.25 of this chapter.

2. If FRA finds that the petition complies with the requirements of this section and that the proposed usage is in the public interest and consistent with railroad safety, the petition will be granted, normally within 90 days of its receipt. If the petition is neither granted nor denied within 90 days, the petition remains pending for decision. FRA may attach special conditions to the approval of the petition. Following the approval of a petition, FRA may reopen consideration of the petition for cause stated.

3. If FRA finds that the petition does not comply with the requirements of this section or that the proposed usage is not in the public interest and consistent with railroad safety, the petition will be denied, normally within 90 days of its receipt.

4. When FRA grants or denies a petition, or reopens consideration of the petition, written notice is sent to the petitioner and other interested parties.
§ 238.205 -- Anti-climbing mechanism.
(a) Except as provided in paragraph (b) of this section, all passenger equipment placed in service for the first time on or after September 8, 2000 shall have at both the forward and rear ends an anti-climbing mechanism capable of resisting an upward or downward vertical force of 100,000 pounds without failure. When coupled together in any combination to join two vehicles, AAR Type H and Type F tight-lock couplers satisfy this requirement.
(b) Except for a cab car or an MU locomotive, each locomotive ordered on or after September 8, 2000, or placed in service for the first time on or after September 9, 2002, shall have an anti-climbing mechanism at its forward end capable of resisting an upward or downward vertical force of 200,000 pounds without failure.

§ 238.207 -- Link between coupling mechanism and car body.
All passenger equipment placed in service for the first time on or after September 8, 2000 shall have a coupler carrier at each end designed to resist a vertical downward thrust from the coupler shank of 100,000 pounds for any normal horizontal position of the coupler, without permanent deformation. For passenger equipment that is connected by articulated joints that comply with the requirements of § 238.205(a), such passenger equipment also complies with the requirements of this section.

§ 238.209 -- Forward-facing end structure of locomotives.
The skin covering the forward-facing end of each locomotive shall be:
(a) Equivalent to a 1/2 inch steel plate with a 25,000 pounds-per-square-inch yield strength-material of a higher yield strength may be used to decrease the required thickness of the material provided at least an equivalent level of strength is maintained;
(b) Designed to inhibit the entry of fluids into the occupied cab area of the equipment;
(c) Affixed to the collision posts or other main vertical structural members of the forward end structure so as to add to the strength of the end structure; and
(d) As used in this section, the term "skin" does not include forward-facing windows and doors.

§ 238.211 -- Collision posts.
(a) Except as further specified in this paragraph and paragraphs (b) and (c) of this section-
(1) All passenger equipment placed in service for the first time on or after September 8, 2000 shall have either:
   (i) Two full-height collision posts, located at approximately the one-third points laterally, at each end. Each collision post shall have an ultimate longitudinal shear strength of not less than 300,000 pounds at a point even with the top of the underframe member to which it is attached. If reinforcement is used to provide the shear value, the reinforcement shall have full value for a distance of 18 inches up from the underframe connection and then taper to a point approximately 30 inches above the underframe connection; or
   (ii) An equivalent end structure that can withstand the sum of forces that each collision post in paragraph (a)(1)(i) of this section is required to withstand.
For analysis purposes, the required forces may be assumed to be evenly
distributed at the end structure at the underframe joint.

(2) The requirements of this paragraph do not apply to unoccupied passenger
equipment operating in a passenger train, or to the rear end of a locomotive if the end is
unoccupied by design.

(b) Each locomotive, including a cab car and an MU locomotive, ordered on or after
September 8, 2000, or placed in service for the first time on or after September 9, 2002,
shall have at its forward end, in lieu of the structural protection described in paragraph
(a) of this section, either:

(1) Two forward collision posts, located at approximately the one-third points
laterally, each capable of withstanding:

(i) A 500,000-pound longitudinal force at the point even with the top of
the underframe, without exceeding the ultimate strength of the joint; and

(ii) A 200,000-pound longitudinal force exerted 30 inches above the joint
of the post to the underframe, without exceeding the ultimate strength; or

(2) An equivalent end structure that can withstand the sum of the forces that each
collision post in paragraph (b)(1)(i) of this section is required to withstand.

(c) The end structure requirements in paragraphs (a) and (b) of this section apply
only to the ends of a semi-permanently coupled consist of articulated units, provided that:

(1) The railroad submits to the FRA Associate Administrator for Safety under the
procedures specified in § 238.21 a documented engineering analysis establishing that the
articulated connection is capable of preventing disengagement and telescoping to the
same extent as equipment satisfying the anti-climbing and collision post requirements
contained in this subpart; and

(2) FRA finds the analysis persuasive.

§ 238.213 -- Corner posts.

(a) Each passenger car shall have at each end of the car, placed ahead of the
occupied volume, two full-height corner posts capable of resisting:

(1) A horizontal load of 150,000 pounds at the point of attachment to the
underframe without failure;

(2) A horizontal load of 20,000 pounds at the point of attachment to the roof
structure without failure; and

(3) A horizontal load of 30,000 pounds applied 18 inches above the top of the
floor without permanent deformation.

(b) For purposes of this section, the orientation of the applied horizontal loads shall
range from longitudinal inward to transverse inward.
§ 238.215 -- Rollover strength.
(a) Each passenger car shall be designed to rest on its side and be uniformly supported at the top ("roof rail"), the bottom cords ("side sill") of the side frame, and, if bi-level, the intermediate floor rail. The allowable stress in the structural members of the occupied volumes for this condition shall be one-half yield or one-half the critical buckling stress, whichever is less. Local yielding to the outer skin of the passenger car is allowed provided that the resulting deformations in no way intrude upon the occupied volume of the car.
(b) Each passenger car shall also be designed to rest on its roof so that any damage in occupied areas is limited to roof sheathing and framing. Other than roof sheathing and framing, the allowable stress in the structural members of the occupied volumes for this condition shall be one-half yield or one-half the critical buckling stress, whichever is less. Deformation to the roof sheathing and framing is allowed to the extent necessary to permit the vehicle to be supported directly on the top chords of the side frames and end frames.

§ 238.217 -- Side structure.
Each passenger car shall comply with the following:
(a) Side posts and corner braces.
   (1) For modified girder, semi-monocoque, or truss construction, the sum of the section moduli in inches<sup>3</sup>-about a longitudinal axis, taken at the weakest horizontal section between the side sill and side plate-of all posts and braces on each side of the car located between the body corner posts shall be not less than 0.30 multiplied by the distance in feet between the centers of end panels.
   (2) For modified girder or semi-monocoque construction only, the sum of the section moduli in inches<sup>3</sup>-about a transverse axis, taken at the weakest horizontal section between the side sill and side plate-of all posts, braces and pier panels, to the extent available, on each side of the car located between body corner posts shall be not less than 0.20 multiplied by the distance in feet between the centers of end panels.
   (3) The center of an end panel is the point midway between the center of the body corner post and the center of the adjacent side post.
   (4) The minimum section moduli or thicknesses specified in paragraph (a) of this section may be adjusted in proportion to the ratio of the yield strength of the material used to that of mild open-hearth steel for a car whose structural members are made of a higher strength steel.
(b) Sheathing.
   (1) Outside sheathing of mild, open-hearth steel when used flat, without reinforcement (other than side posts) in a side frame of modified girder or semi-monocoque construction shall not be less than 1/8 inch nominal thickness. Other metals may be used of a thickness in inverse proportion to their yield strengths.
   (2) Outside metal sheathing of less than 1/8 inch thickness may be used only if it is reinforced so as to produce at least an equivalent sectional area at a right angle to reinforcements as that of the flat sheathing specified in paragraph (b)(1) of this section.
   (3) When the sheathing used for truss construction serves no load-carrying function, the minimum thickness of that sheathing shall be not less than 40 percent of that specified in paragraph (b)(1) of this section.
§ 238.219 -- Truck-to-car-body attachment.

Passenger equipment shall have a truck-to-car-body attachment with an ultimate strength sufficient to resist without failure the following individually applied loads: 2g vertically on the mass of the truck; and 250,000 pounds in any horizontal direction on the truck, along with the resulting vertical reaction to this load. For purposes of this section, the mass of the truck includes axles, wheels, bearings, the truck-mounted brake system, suspension system components, and any other component attached to the truck by design.

§ 238.221 -- Glazing.
(a) Passenger equipment shall comply with the applicable Safety Glazing Standards contained in part 223 of this chapter, if required by that part.
(b) Each exterior window on a locomotive cab and a passenger car shall remain in place when subjected to:
   (1) The forces described in part 223 of this chapter; and
   (2) The forces due to air pressure differences caused when two trains pass at the minimum separation for two adjacent tracks, while traveling in opposite directions, each train traveling at the maximum authorized speed.

§ 238.223 -- Locomotive fuel tanks.

Locomotive fuel tanks shall comply with either the following or an industry standard providing at least an equivalent level of safety if approved by FRA under § 238.21:
(a) External fuel tanks. External locomotive fuel tanks shall comply with the requirements contained in Appendix D to this part.
(b) Internal fuel tanks.
   (1) Internal locomotive fuel tanks shall be positioned in a manner to reduce the likelihood of accidental penetration from roadway debris or collision.
   (2) Internal fuel tank vent systems shall be designed so they do not become a path of fuel loss in any tank orientation due to a locomotive overturning.
   (3) Internal fuel tank bulkheads and skin shall at a minimum be equivalent to a 5/16-inch thick steel plate with a yield strength of 25,000 pounds-per-square-inch. Material of a higher yield strength may be used to decrease the required thickness of the material provided at least an equivalent level of strength is maintained. Skid plates are not required.

§ 238.225 -- Electrical system.

All passenger equipment shall comply with the following:
(a) Conductors. Conductor sizes shall be selected on the basis of current-carrying capacity, mechanical strength, temperature, flexibility requirements, and maximum allowable voltage drop. Current-carrying capacity shall be derated for grouping and for operating temperature.
(b) Main battery system.
   (1) The main battery compartment shall be isolated from the cab and passenger seating areas by a non-combustible barrier.
(2) Battery chargers shall be designed to protect against overcharging.
(3) If batteries are of the type to potentially vent explosive gases, the battery compartment shall be adequately ventilated to prevent the accumulation of explosive concentrations of these gases.
(c) \textit{Power dissipation resistors}.
(1) Power dissipating resistors shall be adequately ventilated to prevent overheating under worst-case operating conditions as determined by the railroad.
(2) Power dissipation grids shall be designed and installed with sufficient isolation to prevent combustion.
(3) Resistor elements shall be electrically insulated from resistor frames, and the frames shall be electrically insulated from the supports that hold them.
(d) \textit{Electromagnetic interference and compatibility}.
(1) The operating railroad shall ensure electromagnetic compatibility of the safety-critical equipment systems with their environment. Electromagnetic compatibility may be achieved through equipment design or changes to the operating environment.
(2) The electronic equipment shall not produce electrical noise that affects the safe performance of train line control and communications or wayside signaling systems.
(3) To contain electromagnetic interference emissions, suppression of transients shall be at the source wherever possible.
(4) All electronic equipment shall be self-protected from damage or improper operation, or both, due to high voltage transients and long-term over-voltage or under-voltage conditions. This includes protection from both power frequency and harmonic effects as well as protection from radio frequency signals into the microwave frequency range.

\section*{§ 238.227 -- Suspension system.}

On or after November 8, 1999-
(a) All passenger equipment shall exhibit freedom from hunting oscillations at all operating speeds. If hunting oscillations do occur, a railroad shall immediately take appropriate action to prevent derailment. For purposes of this paragraph, hunting oscillations shall be considered lateral oscillations of trucks that could lead to a dangerous instability.
(b) All passenger equipment intended for service above 110 mph shall demonstrate stable operation during pre-revenue service qualification tests at all operating speeds up to 5 mph in excess of the maximum intended operating speed under worst-case conditions-including component wear-as determined by the operating railroad.
(c) Nothing in this section shall affect the requirements of part 213 of this chapter as they apply to passenger equipment as provided in that part.

\section*{§ 238.229 -- Safety appliances.}

Except as provided in this part, all passenger equipment continues to be subject to the safety appliance requirements contained in Federal statute at 49 U.S.C. chapter 203 and in Federal regulations at part 231 and § 232.2 of this chapter.
§ 238.231 -- Brake system.

Except as otherwise provided in this section, on or after September 9, 1999 the following requirements apply to all passenger equipment and passenger trains.

(a) A passenger train's primary brake system shall be capable of stopping the train with a service application from its maximum authorized operating speed within the signal spacing existing on the track over which the train is operating.

(b) The brake system design of passenger equipment ordered on or after September 8, 2000 or placed in service for the first time on or after September 9, 2002, shall not require an inspector to place himself or herself on, under, or between components of the equipment to observe brake actuation or release.

(c) Passenger equipment shall be provided with an emergency brake application feature that produces an irretrievable stop, using a brake rate consistent with prevailing adhesion, passenger safety, and brake system thermal capacity. An emergency brake application shall be available at any time, and shall be initiated by an unintentional parting of the train.

(d) A passenger train brake system shall respond as intended to signals from a train brake control line or lines. Control lines shall be designed so that failure or breakage of a control line will cause the brakes to apply or will result in a default to control lines that meet this requirement.

(e) Introduction of alcohol or other chemicals into the air brake system of passenger equipment is prohibited.

(f) The operating railroad shall require that the design and operation of the brake system results in wheels that are free of condemnable cracks.

(g) Disc brakes shall be designed and operated to produce a surface temperature no greater than the safe operating temperature recommended by the disc manufacturer and verified by testing or previous service.

(h) **Hand brakes and parking brakes.**

(1) Except for a locomotive that is ordered before September 8, 2000 or placed in service for the first time before September 9, 2002, and except for MU locomotives, all locomotives shall be equipped with a hand or parking brake that can:

(i) Be applied or activated by hand;

(ii) Be released by hand; and

(iii) Hold the loaded unit on the maximum grade anticipated by the operating railroad.

(2) Except for a private car and locomotives addressed in paragraph (h)(1) of this section, all other passenger equipment, including MU locomotives, shall be equipped with a hand brake that meets the requirements for hand brakes contained in part 231 of this chapter and that can:

(i) Be applied or activated by hand;

(ii) Be released by hand; and

(iii) Hold the loaded unit on the maximum grade anticipated by the operating railroad.

(3) The air brake shall not be depended upon to hold equipment standing unattended on a grade (including a locomotive, a car, or a train whether or not a locomotive is attached). When required, a sufficient number of hand brakes shall be applied to hold the train or equipment before the air brakes are released. Any hand brakes
applied to hold equipment shall not be released until it is known that the air brake system is properly charged.

(i) Passenger cars shall be equipped with a means to apply the emergency brake that is accessible to passengers and located in the vestibule or passenger compartment. The emergency brake shall be clearly identified and marked.

(j) Locomotives ordered after September 8, 2000, or placed in service for the first time after September 9, 2002, that are equipped with blended brakes shall be designed so that

1. The blending of friction and dynamic brake to obtain the correct retarding force is automatic;
2. Loss of power or failure of the dynamic brake does not result in exceeding the allowable stopping distance;
3. The friction brake alone is adequate to safely stop the train under all operating conditions; and
4. Operation of the friction brake alone does not result in thermal damage to wheels or disc rotor surface temperatures exceeding the manufacturer's recommendation.

(k) For new designs of braking systems, the design process shall include computer modeling or dynamometer simulation of train braking that shows compliance with paragraphs (f) and (g) of this section over the range of equipment operating speeds. A new simulation is required prior to implementing a change in operating parameters.

(l) Locomotives ordered on or after September 8, 2000 or placed in service for the first time on or after September 9, 2002, shall be equipped with effective air coolers or dryers that provide air to the main reservoir with a dew point at least 10 degrees F. below ambient temperature.

(m) When a passenger train is operated in either direct or graduated release--(1) all the cars in the train consist shall be set up in the same operating mode or
2. up to two cars may be operated in direct release mode when the rest of the cars in the train are operated in graduated release mode, provided that the cars operated in direct release mode are hauled at the rear of the train consist.

(n) Before adjusting piston travel or working on brake rigging, the cutout cock in the brake pipe branch must be closed and the air reservoirs must be voided of all compressed air. When cutout cocks are provided in brake cylinder pipes, these cutout cocks may be closed, and air reservoirs need not be voided of all compressed air.

(o) All passenger trains to which this part applies shall comply with the requirements covering the use of two-way end-of-train devices contained in part 232 of this chapter.

§ 238.233 -- Interior fittings and surfaces.

(a) Each seat in a passenger car shall-

1. Be securely fastened to the car body so as to withstand an individually applied acceleration of 4g acting in the lateral direction and 4g acting in the upward vertical direction on the deadweight of the seat or seats, if held in tandem; and
2. Have an attachment to the car body of an ultimate strength capable of resisting simultaneously:
   (i) The longitudinal inertial force of 8g acting on the mass of the seat; and
   (ii) The load associated with the impact into the seatback of an unrestrained 95th-percentile adult male initially seated behind the seat, when the
floor to which the seat is attached decelerates with a triangular crash pulse having a peak of 8g and a duration of 250 milliseconds.

(b) Overhead storage racks in a passenger car shall provide longitudinal and lateral restraint for stowed articles. Overhead storage racks shall be attached to the car body with sufficient strength to resist loads due to the following individually applied accelerations acting on the mass of the luggage stowed as determined by the railroad:

1. Longitudinal: 8g;
2. Vertical: 4g; and
3. Lateral: 4g.

(c) Other interior fittings within a passenger car shall be attached to the car body with sufficient strength to withstand the following individually applied accelerations acting on the mass of the fitting:

1. Longitudinal: 8g;
2. Vertical: 4g; and
3. Lateral: 4g.

(d) To the extent possible, all interior fittings in a passenger car, except seats, shall be recessed or flush-mounted.

(e) Sharp edges and corners in a locomotive cab and a passenger car shall be either avoided or padded to mitigate the consequences of an impact with such surfaces.

(f) Each seat provided for a crewmember regularly assigned to occupy the cab of a locomotive and each floor-mounted seat in the cab shall be secured to the car body with an attachment having an ultimate strength capable of withstanding the loads due to the following individually applied accelerations acting on the combined mass of the seat and a 95th-percentile adult male occupying it:

1. Longitudinal: 8g;
2. Lateral: 4g; and
3. Vertical: 4g.

(g) If, for purposes of showing compliance with the requirements of this section, the strength of a seat attachment is to be demonstrated through sled testing, the seat structure and seat attachment to the sled that is used in such testing must be representative of the actual seat structure in, and seat attachment to, the rail vehicle subject to the requirements of this section. If the attachment strength of any other interior fitting is to be demonstrated through sled testing, for purposes of showing compliance with the requirements of this section, such testing shall be conducted in a similar manner.

§ 238.235 -- Doors.

(a) By December 31, 1999, each powered, exterior side door in a vestibule that is partitioned from the passenger compartment of a passenger car shall have a manual override device that is:

1. Capable of releasing the door to permit it to be opened without power from inside the car;
2. Located adjacent to the door which it controls; and
3. Designed and maintained so that a person may readily access and operate the override device from inside the car without requiring the use of a tool or other implement. If the door is dual-leafed, only one of the door leafs is required to respond to the manual override device.
Each passenger car ordered on or after September 8, 2000, or placed in service for
the first time on or after September 9, 2002 shall have a minimum of two exterior side
doors, each door providing a minimum clear opening with dimensions of 30 inches
erizontally by 74 inches vertically.

Note: The Americans with Disabilities Act (ADA) Accessibility Specifications for
Transportation Vehicles also contain requirements for doorway clearance (See 49 CFR
part 38).

Each powered, exterior side door on each such passenger car shall have a manual
override device that is:

1. Capable of releasing the door to permit it to be opened without power from
both inside and outside the car;
2. Located adjacent to the door which it controls; and
3. Designed and maintained so that a person may access the override device from
both inside and outside the car without requiring the use of a tool or other implement.

A railroad may protect a manual override device used to open a powered, exterior
doors with a cover or a screen capable of removal without requiring the use of a tool or
other implement.

Door exits shall be marked, and instructions provided for their use, as required by
§ 239.107(a) of this chapter.

§ 238.237 -- Automated monitoring.
(a) Except as further specified in this paragraph, on or after November 8, 1999 a
working alerter or deadman control shall be provided in the controlling locomotive of
each passenger train operating in other than cab signal, automatic train control, or
automatic train stop territory. If the controlling locomotive is ordered on or after
September 8, 2000, or placed into service for the first time on or after September 9, 2002,
a working alerter shall be provided.

(b) Alerter or deadman control timing shall be set by the operating railroad taking
into consideration maximum train speed and capabilities of the signal system. The
railroad shall document the basis for setting alerter or deadman control timing and make
this documentation available to FRA upon request.

(c) If the train operator does not respond to the alerter or maintain proper contact
with the deadman control, it shall initiate a penalty brake application.

(d) The following procedures apply if the alerter or deadman control fails en route
and causes the locomotive to be in non-compliance with paragraph (a):

1. (i) A second person qualified on the signal system and trained to apply the
emergency brake shall be stationed in the locomotive cab; or
(ii) The engineer shall be in constant communication with a second
crewmember until the train reaches the next terminal.

2. (i) A tag shall be prominently displayed in the locomotive cab to indicate
that the alerter or deadman control is defective, until such device is repaired; and
(ii) When the train reaches its next terminal or the locomotive undergoes
its next calendar day inspection, whichever occurs first, the alerter or deadman
control shall be repaired or the locomotive shall be removed as the controlling
locomotive in the train.
Subpart D--Inspection, Testing, and Maintenance Requirements for Tier I Passenger Equipment

§ 238.301 -- Scope.
(a) This subpart contains requirements pertaining to the inspection, testing, and maintenance of passenger equipment operating at speeds not exceeding 125 miles per hour. The requirements in this subpart address the inspection, testing, and maintenance of the brake system as well as other mechanical and electrical components covered by this part.
(b) Beginning January 1, 2002 the requirements contained in this subpart shall apply to railroads operating Tier I passenger equipment covered by this part. A railroad may request earlier application of the requirements contained in this subpart upon written notification to FRA's Associate Administrator for Safety as provided in § 238.1(c).
(c) Paragraphs (b) and (c) of § 238.309 shall apply beginning September 9, 1999.

§ 238.303 -- Exterior calendar day mechanical inspection of passenger equipment.
(a) General.
(1) Except as provided in paragraph (f) of this section, each passenger car and each unpowered vehicle used in a passenger train shall receive an exterior mechanical inspection at least once each calendar day that the equipment is placed in service.
(2) Except as provided in paragraph (f) of this section, all passenger equipment shall be inspected as required in this section at least once each calendar day that the equipment is placed in service to ensure that the equipment conforms with the requirement contained in paragraph (e)(15) of this section.
(3) If a passenger car is also classified as a locomotive under part 229 of this chapter, the passenger car shall also receive a daily inspection pursuant to the requirements of § 229.21 of this chapter.
(b) Each passenger car and each unpowered vehicle added to a passenger train shall receive an exterior calendar day mechanical inspection in accordance with the following:
(1) Except as provided in paragraph (b)(2) of this section, each passenger car and each unpowered vehicle added to a passenger train shall receive an exterior calendar day mechanical inspection at the time it is added to the train unless notice is provided to the train crew that an exterior mechanical inspection was performed on the car or vehicle on the last day it was used in passenger service. The notice required by this section shall contain the date, time, and location of the last exterior mechanical inspection;
(2) Each express car, freight car, and each unit of intermodal equipment (e.g., RoadRailers (R)) added to a passenger train shall receive an exterior calendar day mechanical inspection at the time it is added to the train, unless notice is provided to the train crew that an exterior mechanical inspection was performed on the car within the previous calendar day. The notice required by this section shall contain the date, time, and location of the last exterior mechanical inspection.
(c) The exterior calendar day mechanical inspection shall be performed by a qualified maintenance person.
(d) The exterior calendar day mechanical inspection required by this section shall be conducted to the extent possible without uncoupling the trainset and without placing the equipment over a pit or on an elevated track.
(e) As part of the exterior calendar day mechanical inspection, the railroad shall verify conformity with the following conditions, and nonconformity with any such condition renders the passenger car or unpowered vehicle used in a passenger train defective whenever discovered in service:

1. Products of combustion are released entirely outside the cab and other compartments.
2. Each battery container is vented and each battery is kept from gassing excessively.
3. Each coupler is in the following condition:
   (i) Sidewall or pin bearing bosses and the pulling face of the knuckles are not broken or cracked;
   (ii) The coupler assembly is equipped with anti-creep protection;
   (iii) The coupler carrier is not broken or cracked; and
   (iv) The yoke is not broken or cracked.
4. A device is provided under the lower end of all drawbar pins and articulated connection pins to prevent the pin from falling out of place in case of breakage.
5. The suspension system, including the spring rigging, is in the following condition:
   (i) Protective construction or safety hangers are provided to prevent spring planks, spring seats, or bolsters from dropping to the track structure in event of a hanger or spring failure;
   (ii) The top (long) leaf or any of the other three leaves of the elliptical spring is not broken, except when a spring is part of a nest of three or more springs and none of the other springs in the nest has its top leaf or any of the other three leaves broken;
   (iii) The outer coil spring or saddle is not broken;
   (iv) The equalizers, hangers, bolts, gib, or pins are not cracked or broken;
   (v) The coil spring is not fully compressed when the car is at rest;
   (vi) The shock absorber is not broken or leaking oil or other fluid; and
   (vii) Each air bag or other pneumatic suspension system component inflates or deflates, as applicable, correctly and otherwise operates as intended.
6. Each truck is in the following condition:
   (i) Each tie bar is not loose;
   (ii) Each motor suspension lug, equalizer, hanger, gib, or pin is not cracked or broken; and
   (iii) The truck frame is not broken and is not cracked in a stress area that may affect its structural integrity.
7. Each side bearing is in the following condition:
   (i) Each friction side bearing with springs designed to carry weight does not have more than 25 percent of the springs in any one nest broken;
   (ii) Each friction side bearing does not run in contact unless designed to operate in that manner; and
   (iii) The maximum clearance of each side bearing does not exceed the manufacturer's recommendation.
8. Each wheel does not have any of the following conditions:
   (i) A single flat spot that is 2 1/2 inches or more in length, or two adjoining spots that are each two or more inches in length;
(ii) A gouge or chip in the flange that is more than 1 1/2 inches in length and 1/2 inch in width;
(iii) A broken rim, if the tread, measured from the flange at a point 5/8 of an inch above the tread, is less than 3 3/4 inches in width;
(iv) A shelled-out spot 2 1/2 inches or more in length, or two adjoining spots that are each two or more inches in length;
(v) A seam running lengthwise that is within 3 3/4 inches of the flange;
(vi) A flange worn to a 7/8 inch thickness or less, gauged at a point 3/8 of an inch above the tread;
(vii) A tread worn hollow 5/16 of an inch or more;
(viii) A flange height of 1 1/2 inches or more measured from the tread to the top of the flange;
(ix) A rim less than 1 inch thick;
(x) Except as provided in paragraph (e)(8)(iii) of this section, a crack or break in the flange, tread, rim, plate, or hub;
(xi) A loose wheel; or
(xii) A weld.

(9) No part or appliance of a passenger coach, except the wheels, is less than 2 1/2 inches above the top of the rail.

(10) Each unguarded, noncurrent-carrying metal part subject to becoming charged is grounded or thoroughly insulated.

(11) Each jumper and cable connection is in the following condition:
(i) Each jumpers and cable connection between coaches, between locomotives, or between a locomotive and a coach is located and guarded in a manner that provides sufficient vertical clearance. Jumpers and cable connections may not hang with one end free;
(ii) The insulation is not broken or badly chafed;
(iii) No plug, receptacle, or terminal is broken; and
(iv) No strand of wire is broken or protruding.

(12) Each door and cover plate guarding high voltage equipment is marked "Danger-High Voltage" or with the word "Danger" and the normal voltage carried by the parts so protected.

(13) Each buffer plate is in place.

(14) Each diaphragm, if any, is in place and properly aligned.

(15) Each secondary braking system is in operating mode and does not have any known defective condition which prevents its proper operation. If the dynamic brakes on a locomotive are found not to be in operating mode or are known to have a defective condition which prevents their proper operation at the time that the exterior mechanical inspection is performed or at any other time while the locomotive is in service, the following requirements shall be met in order to continue the locomotive in service:

(i) MU locomotives equipped with dynamic brakes found not to be in operating mode or containing a defective condition which prevents the proper operation of the dynamic brakes shall be handled in accordance with the following requirements:

(A) A tag bearing the words "inoperative dynamic brakes" shall be securely displayed in a conspicuous location in the cab of the locomotive and contain the locomotive number, the date and location where the
condition was discovered, and the signature of the individual who
discovered the condition;
(B) The locomotive engineer shall be informed in writing that the
dynamic brakes on the locomotive are inoperative at the location where
the locomotive engineer first takes charge of the train; and
(C) The inoperative or defective dynamic brakes shall be repaired
or removed from service by or at the locomotive's next exterior calendar
day mechanical inspection.
(ii) Conventional locomotives equipped with dynamic brakes found not to
be in operating mode or containing a defective condition which prevents the
proper operation of the dynamic brakes shall be handled in accordance with the
following:
(A) A tag bearing the words "inoperative dynamic brakes" shall be
securely displayed in a conspicuous location in the cab of the locomotive
and contain the locomotive number, the date and location where the
condition was discovered, and the signature of the person discovering the
condition;
(B) The locomotive engineer shall be informed in writing that the
dynamic brakes on the locomotive are inoperative at the location where
the locomotive engineer first takes charge of the train; and
(C) The inoperative or defective dynamic brakes shall be repaired
within 3 calendar days of being found in defective condition or at the
locomotive's next periodic inspection pursuant to § 229.23 of this chapter,
whichever occurs first.
(16) All roller bearings do not have any of the following conditions:
(i) A sign of having been overheated as evidenced by discoloration or
other telltale sign of overheating, such as damage to the seal or distortion of any
bearing component;
(ii) A loose or missing cap screw;
(iii) A broken, missing, or improperly applied cap screw lock; or
(iv) A seal that is loose or damaged or permits leakage of lubricant in
clearly formed droplets.
(f) Exception. A long-distance intercity passenger train that misses a scheduled
exterior calendar day mechanical inspection due to a delay en route may continue in
service to the location where the inspection was scheduled to be performed. At that point,
an exterior calendar day mechanical inspection shall be performed prior to returning the
equipment to service. This flexibility applies only to the exterior mechanical safety
inspections required by this section, and does not relieve the railroad of the responsibility
to perform a calendar day inspection on a unit classified as a "loomotive" under part 229
of this chapter as required by § 229.21 of this chapter.
(g) Records. A record shall be maintained of each exterior calendar day mechanical
inspection performed.
(1) This record may be maintained in writing or electronically provided FRA has
access to the record upon request
(2) The written or electronic record must contain the following information:
(i) The identification number of the unit;
(ii) The place, date, and time of the inspection;
(iii) Any non-complying conditions found; and
(iv) The signature or electronic identification of the inspector.

(3) This record may be part of a single master report covering an entire group of cars and equipment.

(4) This record shall be maintained at the place where the inspection is conducted or at one central location and shall be retained for at least 92 days.

(h) Cars requiring a single car test in accordance with § 238.311 that are being moved in service to a location where the single car test can be performed shall have the single car test completed prior to, or as a part of, the exterior calendar day mechanical inspection.

§ 238.305 -- Interior calendar day mechanical inspection of passenger cars.
(a) Except as provided in paragraph (d) of this section, each passenger car shall receive an interior mechanical inspection at least once each calendar day that it is placed in service.
(b) The interior calendar day mechanical inspection shall be performed by a qualified person or a qualified maintenance person.
(c) As part of the interior calendar day mechanical inspection, the railroad shall verify conformity with the following conditions, and nonconformity with any such condition renders the car defective whenever discovered in service, except as provided in paragraphs (c)(5) through (c)(10), and paragraph (d) of this section:
   (1) All fan openings, exposed gears and pinions, exposed moving parts of mechanisms, pipes carrying hot gases and high-voltage equipment, switches, circuit breakers, contactors, relays, grid resistors, and fuses are installed in non-hazardous locations or equipped with guards to prevent personal injury.
   (2) Floors of passageways and compartments are free from oil, water, waste, or any obstruction that creates a slipping, tripping, or fire hazard, and floors are properly treated to provide secure footing.
   (3) All D rings, pull handles, or other means to access manual door releases are in place based on a visual inspection.
   (4) All emergency equipment, including a fire extinguisher, pry bar, auxiliary portable lighting, and first aid kits, as applicable, are in place.
   (5) The words "Emergency Brake Valve" are legibly stenciled or marked near each brake pipe valve or shown on an adjacent badge plate.
   (6) All doors and cover plates guarding high voltage equipment are marked "Danger-High Voltage" or with the word "Danger" and the normal voltage carried by the parts so protected.
   (7) All safety-related signage is in place and legible.
   (8) All trap doors safely operate and securely latch in place in both the up and down position. A non-complying car may continue in passenger service pursuant to paragraph (d) of this section, if the trap door can be secured by locking out the door for which it is used.
   (9) All vestibule steps are illuminated. A non-complying car may continue in passenger service pursuant to paragraph (d) of this section, if the car will be used solely in high-platform service.
   (10) All end doors and side doors operate safely and as intended. A non-complying car may continue in passenger service pursuant to paragraph (d) of this section, if at least one operative and accessible door is available on each side of the car;
and a notice is prominently displayed directly on the defective door indicating that the door is defective.

(d) Any passenger car found not to be in compliance with the requirements contained in paragraphs (c)(5) through (c)(10) of this section at the time of its interior calendar day mechanical inspection may remain in passenger service until the car's next interior calendar day mechanical inspection where it must be repaired or removed from passenger service; provided, all of the specific conditions contained in paragraphs (c)(8) through (c)(10) of this section are met and all of the following requirements are met:

1. A qualified person or a qualified maintenance person determines that the repairs necessary to bring the car into compliance cannot be performed at the time that the current day's interior mechanical inspection is conducted;

2. A qualified person or a qualified maintenance person determines that it is safe to move the equipment in passenger service; and

3. A record is maintained of the non-complying condition with the date and time that the condition was first discovered.

(e) A long-distance intercity passenger train that misses a scheduled calendar day interior mechanical inspection due to a delay en route may continue in service to the location where the inspection was scheduled to be performed. At that point, an interior calendar day mechanical inspection shall be performed prior to returning the equipment to service.

(f) Records. A record shall be maintained of each interior calendar day mechanical inspection performed.

1. This record may be maintained in writing or electronically provided FRA has access to the record upon request.

2. The written or electronic record must contain the following information:
   (i) The identification number of the unit;
   (ii) The place, date, and time of the inspection;
   (iii) Any non-complying conditions found; and
   (iv) The signature or electronic identification of the inspector.

3. This record may be part of a single master report covering an entire group of cars and equipment.

4. This record shall be maintained at the place where the inspection is conducted or at one central location and shall be retained for at least 92 days.

§ 238.307 -- Periodic mechanical inspection of passenger cars and unpowered vehicles used in passenger trains.

(a) General.

1. Railroads shall conduct periodic mechanical inspections of all passenger cars and all unpowered vehicles used in a passenger train as required by this section or as warranted and justified by data developed pursuant to paragraph (a)(2) of this section. A periodic inspection conducted under part 229 of this chapter satisfies the requirement of this section with respect to the features inspected.

2. A railroad may, upon written notification to FRA's Associate Administrator for Safety, adopt and comply with alternative periodic mechanical inspection intervals for specific components or equipment in lieu of the requirements of this section. Any alternative interval must be based upon a documented reliability assessment conducted under a system safety plan subject to periodic peer audit. (See Appendix E to this part for
a discussion of the general principles of reliability-based maintenance programs.) The periodic inspection intervals provided in this section may be changed only when justified by accumulated, verifiable data that provides a high level of confidence that the component(s) will not fail in a manner resulting in harm to persons. FRA may monitor and review a railroad's implementation and compliance with any alternative interval adopted. FRA's Associate Administrator for Safety may prohibit or revoke a railroad's ability to utilize an alternative inspection interval if FRA determines that the adopted interval is not supported by credible data or does not provide adequate safety assurances. Such a determination will be made in writing and will state the basis for such action.

(b) Each periodic mechanical inspection required by this section shall be performed by a qualified maintenance person.

(c) The periodic mechanical inspection shall specifically include the following interior and exterior mechanical components, which shall be inspected not less frequently than every 184 days. At a minimum, this inspection shall determine that:

(1) Seats and seat attachments are not broken or loose. If a car is found with a seat that is not in compliance with this requirement while being used between periodic mechanical inspections, the equipment may continue to be used in passenger service until the performance of an interior calendar day mechanical inspection pursuant to § 238.305 on the day following the discovery of the defective condition provided the seat is rendered unusable, a notice is prominently displayed on the seat, and a record is maintained with the date and time that the non-complying condition was discovered.

(2) Luggage racks are not broken or loose.

(3) All beds and bunks are not broken or loose, and all restraints or safety latches and straps are in place and function as intended.

(4) A representative sample of emergency window exits on the railroad's passenger cars properly operate, in accordance with the requirements of § 239.107 of this chapter.

(5) Emergency lighting systems are operational.

(6) With regard to switches:

(i) All hand-operated switches carrying currents with a potential of more than 150 volts that may be operated while under load are covered and are operative from the outside of the cover;

(ii) A means is provided to display whether the switches are open or closed; and

(iii) Switches not designed to be operated safely while under load are legibly marked with the voltage carried and the words "must not be operated under load".

(7) Each coupler is in the following condition:

(i) The distance between the guard arm and the knuckle nose is not more than 5 1/8 inches on standard type couplers (MCB contour 1904), or not more than 5 5/16 inches on D&E couplers;

(ii) The free slack in the coupler or drawbar not absorbed by friction devices or draft gears is not more than 1/2 inch; and

(iii) The draft gear is not broken, to the extent possible without dropping cover plates.

(8) All trucks are equipped with a device or securing arrangement to prevent the truck and car body from separating in case of derailment.

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All center castings on trucks are not cracked or broken, to the extent possible without jacking the car and rolling out the trucks. However, an extensive inspection of all center castings shall be conducted by jacking the equipment and rolling out the trucks at each COT&S cycle provided in § 238.309 for the equipment.

All mechanical systems and components of the equipment are free of all the following general conditions that endanger the safety of the crew, passengers, or equipment:

(i) A continuous accumulation of oil or grease;
(ii) Improper functioning of a component;
(iii) A crack, break, excessive wear, structural defect, or weakness of a component;
(iv) A leak;
(v) Use of a component or system under a condition that exceeds that for which the component or system is designed to operate; and
(vi) Insecure attachment of a component.

All of the items identified in the exterior calendar day mechanical inspection contained at § 238.303 are in conformity with the conditions prescribed in that section.

All of the items identified in the interior calendar day mechanical inspection contained at § 238.305 are in conformity with the conditions prescribed in that section.

d) The periodic mechanical inspection shall specifically include the manual door releases, which shall be inspected not less frequently than every 368 days. At a minimum, this inspection shall determine that all manual door releases operate as intended.

e) Records. (1) A record shall be maintained of each periodic mechanical inspection required to be performed by this section. This record may be maintained in writing or electronically, provided FRA has access to the record upon request. The record shall be maintained either in the railroad's files, the cab of the locomotive, or a designated location in the passenger car. The record shall be retained until the next periodic mechanical inspection of the same type is performed and shall contain the following information:

   (i) The date of the inspection;
   (ii) The location where the inspection was performed;
   (iii) The signature or electronic identification of the inspector; and
   (iv) The signature or electronic identification of the inspector's supervisor.

   (2) Detailed documentation of any reliability assessments depended upon for implementing an alternative inspection interval under paragraph (a)(2) of this section, including underlying data, shall be retained during the period that the alternative inspection interval is in effect. Data documenting inspections, tests, component replacement and renewals, and failures shall be retained for not less than three (3) inspection intervals.

   (f) Nonconformity with any of the conditions set forth in this section renders the car or vehicle defective whenever discovered in service.

§ 238.309 -- Periodic brake equipment maintenance.

(a) General.

   (1) This section contains the minimum intervals at which the brake equipment on various types of passenger equipment shall be periodically cleaned, repaired, and tested. This maintenance procedure requires that all of the equipment's brake system pneumatic
components that contain moving parts and are sealed against air leaks be removed from
the equipment, disassembled, cleaned, and lubricated and that the parts that can
deteriorate with age be replaced.

(2) A railroad may petition FRA's Associate Administrator for Safety to approve
alternative maintenance procedures providing equivalent safety, in lieu of the
requirements of this section. The petition shall be filed as provided in § 238.21.
(b) MU locomotives. The brake equipment of each MU locomotive shall be cleaned,
repaired, and tested at intervals in accordance with the following schedule:
   (1) Every 736 days if the MU locomotive is part of a fleet that is not 100 percent
       equipped with air dryers;
   (2) Every 1,104 days if the MU locomotive is part of a fleet that is 100 percent
       equipped with air dryers and is equipped with PS-68, 26-C, 26-L, PS-90, CS-1, RT-2,
       RT-5A, GRB-1, CS-2, or 26-R brake systems. (This listing of brake system types is
       intended to subsume all brake systems using 26 type, ABD, or ABDW control valves and
       PS68, PS-90, 26B-1, 26C, 26CE, 26-B1, 30CDW, or 30ECDW engineer's brake valves.);
   and
   (3) Every 736 days for all other MU locomotives.
(c) Conventional locomotives. The brake equipment of each conventional
locomotive shall be cleaned, repaired, and tested at intervals in accordance with the
following schedule:
   (1) Every 1,104 days for a locomotive equipped with a 26-L or equivalent brake
       system; and
   (2) Every 736 days for a locomotive equipped with other than a 26-L or
       equivalent brake system.
(d) Passenger coaches and other unpowered vehicles. The brake equipment on each
passenger coach and each unpowered vehicle used in a passenger train shall be cleaned,
repaired, and tested at intervals in accordance with following schedule:
   (1) Every 2,208 days for a coach or vehicle equipped with an AB-type brake
       system.
   (2) Every 1,476 days for a coach or vehicle equipped with a 26-C or equivalent
       brake system; and
   (3) Every 1,104 days for a coach or vehicle equipped with other than an AB,
       ABD, ABDX, 26-C, or equivalent brake system.
(e) Cab cars. The brake equipment of each cab car shall be cleaned, repaired, and
tested at intervals in accordance with the following schedule:
   (1) Every 1,476 days for that portion of the cab car brake system using brake
       valves that are identical to the passenger coach 26-C brake system;
   (2) Every 1,104 days for that portion of the cab car brake system using brake
       valves that are identical to the locomotive 26-L brake system; and
   (3) Every 736 days for all other types of cab car brake valves.
(f) Records of periodic maintenance.
   (1) The date and place of the cleaning, repairing, and testing required by this
       section shall be recorded on Form FRA 6180-49A or a similar form developed by the
       railroad containing the same information, and the person performing the work and that
       person's supervisor shall sign the form, if possible. Alternatively, the railroad may stencil
       the vehicle with the date and place of the cleaning, repairing, and testing and maintain an
       electronic record of the person performing the work and that person's supervisor.
A record of the parts of the air brake system that are cleaned, repaired, and tested shall be kept in the railroad's files, the cab of the locomotive, or a designated location in the passenger car until the next such periodic test is performed.

§ 238.311 -- Single car test.
(a) Except for self-propelled passenger cars, single car tests of all passenger cars and all unpowered vehicles used in passenger trains shall be performed in accordance with either APTA Standard SS-M-005-98, "Code of Tests for Passenger Car Equipment Using Single Car Testing Device," published March, 1998; or an alternative procedure approved by FRA pursuant to § 238.21. The incorporation by reference of this APTA standard was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of the incorporated document from the American Public Transit Association, 1201 New York Avenue, N.W., Washington, D.C. 20005. You may inspect a copy of the document at the Federal Railroad Administration, Docket Clerk, 1120 Vermont Avenue, N.W., Suite 7000, Washington, D.C. or at the Office of the Federal Register, 800 North Capitol Street, N.W., Suite 700, Washington, D.C.
(b) Each single car test required by this section shall be performed by a qualified maintenance person.
(c) A railroad shall perform a single car test of the brake system of a car or vehicle described in paragraph (a) of this section if the car or vehicle is found with one or more of the following wheel defects:
   (1) Built-up tread;
   (2) Slid flat wheel;
   (3) Thermal crack;
   (4) Overheated wheel; or
   (5) Shelling.
(d) A railroad need not perform the single car test required in paragraph (c) of this section, if the railroad can establish that the wheel defect is other than built-up tread and is due to a cause other than a defective brake system on the car.
(e) Except as provided in paragraph (f) of this section, a railroad shall perform a single car test of the brake system of a car or vehicle described in paragraph (a) of this section when:
   (1) Except for private cars, the car or vehicle is placed in service after having been out of service for 30 days or more; or
   (2) One or more of the following conventional air brake equipment items is removed, repaired, or replaced:
      (i) Relay valve;
      (ii) Service portion;
      (iii) Emergency portion; or
      (iv) Pipe bracket.
(f) Exception. If the single car test cannot be made at the point where repairs are made, the car may be moved in passenger service to the next forward location where the test can be made. A railroad may move a car in this fashion only after visually verifying an application and release of the brakes on both sides of the car that was repaired, and provided that the car is appropriately tagged to indicate the need to perform a single car test.
test. The single car test shall be completed prior to, or as a part of, the car's next calendar
day mechanical inspection.
(g) If one or more of the following conventional air brake equipment items is
removed, repaired, or replaced only that portion which is renewed or replaced must be
tested to satisfy the provisions of this section:
   (1) Brake reservoir;
   (2) Brake cylinder;
   (3) Piston assembly;
   (4) Vent valve;
   (5) Quick service valve;
   (6) Brake cylinder release valve;
   (7) Modulating valve or slack adjuster; or
   (8) Angle cock or cutout cock.

§ 238.313 -- Class I brake test.
(a) Each commuter and short-distance intercity passenger train shall receive a Class I
brake test once each calendar day that the train is placed or continues in passenger
service.
(b) Except as provided in paragraph (i) of this section, each long-distance intercity
passenger train shall receive a Class I brake test:
   (1) Prior to the train's departure from an originating terminal; and
   (2) Every 1,500 miles or once each additional calendar day, whichever occurs
first, that the train remains in continuous passenger service.
(c) Each passenger car and each unpowered vehicle added to a passenger train shall
receive a Class I or Class IA brake test at the time it is added to the train unless notice is
provided to the train crew that a Class I brake test was performed on the car within the
previous calendar day and the car has not been disconnected from a source of compressed
air for more than four hours prior to being added to the train. The notice required by this
section shall contain the date, time, and location of the last Class I brake test.
(d) Each Class I brake test shall be performed by a qualified maintenance person.
(e) Each Class I brake test may be performed either separately or in conjunction with
the exterior calendar day mechanical inspection required under § 238.303.
(f) Except as provided in § 238.15(b), a railroad shall not use or haul a passenger
train in passenger service from a location where a Class I brake test has been performed,
or was required by this part to have been performed, with less than 100 percent operative
brakes.
(g) A Class I brake test shall be performed at the air pressure at which the train's air
brakes will be operated, but not less than 90 psi, and shall be made to determine and
ensure that:
   (1) The friction brakes apply and remain applied on each car in the train until a
release of the brakes has been initiated on each car in response to train line electric,
pneumatic, or other signals. This test shall include a verification that each side of each
car's brake system responds properly to application and release signals;
   (2) The brake shoes or pads are firmly seated against the wheel or disc with the
brakes applied;
   (3) Piston travel is within prescribed limits, either by direct observation,
observeration of an actuator, or in the case of tread brakes by determining that the brake
shoe provides pressure to the wheel. For vehicles equipped with 8 1/2-inch or 10-inch diameter brake cylinders, piston travel shall be within 7 to 9 inches. If piston travel is found to be less than 7 inches or more than 9 inches, it must be adjusted to nominally 7 1/2 inches. Proper release of the brakes can be determined by observation of the clearance between the brake shoe and the wheel or between the brake pad and the brake disc.

(4) The communicating signal system is tested and known to be operating as intended; a tested and operating two-way radio system meets;

(5) Each brake shoe or pad is securely fastened and correctly aligned in relation to the wheel or to the disc;

(6) The engineer's brake valve or controller will cause the proper train line commands for each position or brake level setting;

(7) Brake pipe leakage does not exceed 5 pounds per square inch per minute if leakage will affect service performance;

(8) The emergency brake application and deadman pedal or other emergency control devices function as intended;

(9) Each brake shoe or pad is not below the minimum thickness established by the railroad. This thickness shall not be less than the minimum thickness necessary to safely travel the maximum distance allowed between Class I brake tests;

(10) Each angle cock and cutout cock is properly positioned;

(11) The brake rigging or the system mounted on the car for the transmission of the braking force operates as intended and does not bind or foul so as to impede the force delivered to a brake shoe, impede the release of a brake shoe, or otherwise adversely affect the operation of the brake system;

(12) If the train is equipped with electropneumatic brakes, an electropneumatic application of the brakes is made and the train is walked to determine that the brakes on each car in the train properly apply;

(13) Each brake disc is free of any crack in accordance with the manufacturer's specifications or, if no specifications exist, free of any crack to the extent that the design permits;

(14) If the equipment is provided with a brake indicator, the brake indicator operates as intended; and

(15) The communication of brake pipe pressure changes at the rear of the train is verified, which may be accomplished by observation of an application and release of the brakes on the last car in the train.

(h) Records. A record shall be maintained of each Class I brake test performed.

(1) This record may be maintained in writing or electronically, provided FRA has access to the record upon request.

(2) The written or electronic record must contain the following information:

(i) The date and time that the Class I brake test was performed;

(ii) The location where the test was performed;

(iii) The identification number of the controlling locomotive of the train;

(iv) The total number of cars inspected during the test; and

(v) The signature or electronic identification of the inspector.

(3) This record shall be maintained at the place where the inspection is conducted or at one central location and shall be retained for at least 92 days.
A long-distance, intercity passenger train that misses a scheduled calendar day Class I brake test due to a delay en route may proceed to the point where the Class I brake test was scheduled to be performed. A Class I brake test shall be completed at that point prior to placing the train back in service.

§ 238.315 -- Class IA brake test.
(a) Except as provided in paragraph (b) of this section, either a Class I or a Class IA brake test shall be performed:
   (1) Prior to the first morning departure of each commuter or short-distance intercity passenger train, unless all of the following conditions are satisfied:
      (i) A Class I brake test was performed within the previous twelve (12) hours;
      (ii) The train has not been used in passenger service since the performance of the Class I brake test; and
      (iii) The train has not been disconnected from a source of compressed air for more than four hours since the performance of the Class I brake test; and
   (2) Prior to placing a train in service that has been off a source of compressed air for more than four hours.
(b) A commuter or short-distance intercity passenger train that provides continuing late night service that began prior to midnight may complete its daily operating cycle after midnight without performing another Class I or Class IA brake test. A Class I or Class IA brake test shall be performed on such a train before it starts a new daily operating cycle.
(c) A Class IA brake test may be performed at a shop or yard site and need not be repeated at the first passenger terminal if the train remains on a source of compressed air and (1) the train remains in the custody of the train crew; or (2) the train crew receives notice that the Class IA brake test has been performed.
(d) The Class IA brake test shall be performed by either a qualified person or a qualified maintenance person.
(e) Except as provided in § 238.15(b), a railroad shall not use or haul a passenger train in passenger service from a location where a Class IA brake test has been performed, or was required by this part to have been performed, with less than 100 percent operative brakes.
(f) A Class IA brake test shall be performed at the air pressure at which the train's air brakes will be operated and shall determine and ensure that:
   (1) Brake pipe leakage does not exceed 5 pounds per square inch per minute if brake pipe leakage will affect service performance;
   (2) Each brake sets and releases by inspecting in the manner described in paragraph (g) of this section;
   (3) For MU locomotives that utilize an electric signal to communicate a service brake application and only a pneumatic signal to propagate an emergency brake application, the emergency brake application functions as intended.
   (4) Each angle cock and cutout cock is properly set;
   (5) The communication of brake pipe pressure changes at the rear of the train is verified, which may be accomplished by observation of an application and release of the brakes on the last car in the train; and

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(6) The communicating signal system is tested and known to be operating as intended; a tested and operating two-way radio system meets this requirement.

(g) In determining whether each brake sets and releases-
(1) The inspection of the set and release of the brakes shall be completed by walking the train to directly observe the set and release of each brake, if the railroad determines that such a procedure is safe.
(2) If the railroad determines that operating conditions pose a safety hazard to an inspector walking the brakes, brake indicators may be used to verify the set and release on cars so equipped. However, the observation of the brake indicators shall not be made from the cab of the locomotive. The inspector shall walk the train in order to position himself or herself to accurately observe each indicator.

§ 238.317 -- Class II brake test.
(a) A Class II brake test shall be performed on a passenger train when any of the following events occurs:
(1) Whenever the control stand used to control the train is changed; except if the control stand is changed to facilitate the movement of a passenger train from one track to another within a terminal complex while not in passenger service. In these circumstances, a Class II brake test shall be performed prior to the train's departure from the terminal complex with passengers;
(2) Prior to the first morning departure of each commuter or short-distance intercity passenger train where a Class I brake test remains valid as provided in § 238.315(a)(1);
(3) When previously tested units (i.e., cars that received a Class I brake test within the previous calendar day and have not been disconnected from a source of compressed air for more than four hours) are added to the train;
(4) When cars or equipment are removed from the train; and
(5) When an operator first takes charge of the train, except for face-to-face relief.
(b) A Class II brake test shall be performed by a qualified person or a qualified maintenance person.
(c) Except as provided in § 238.15, a railroad shall not use or haul a passenger train in passenger service from a terminal or yard where a Class II brake test has been performed, or was required by this part to have been performed, with any of the brakes cut-out, inoperative, or defective.
(d) In performing a Class II brake test on a train, a railroad shall determine that:
(1) The brakes on the rear unit of the train apply and release in response to a signal from the engineer's brake valve or controller of the leading or controlling unit, or a gauge or similar device located at the rear of the train or in the cab of the rear unit indicates that brake pipe pressure changes are properly communicated at the rear of the train;
(2) For MU locomotives that utilize an electric signal to communicate a service brake application and only a pneumatic signal to propagate an emergency brake application, the emergency brake application functions as intended.
(3) The communicating signal system is tested and known to be operating as intended; a tested and operating two-way radio system meets this requirement.
§ 238.319 -- Running brake test.
(a) As soon as conditions safely permit, a running brake test shall be performed on each passenger train after the train has received, or was required under this part to have received, either a Class I, Class IA, or Class II brake test.
(b) A running brake test shall be performed whenever the control stand used to control the train is changed to facilitate the movement of a passenger train from one track to another within a terminal complex while not in passenger service.
(c) The running brake test shall be conducted in accordance with the railroad's established operating rules, and shall be made by applying brakes in a manner that allows the engineer to ascertain whether the brakes are operating properly.
(d) If the engineer determines that the brakes are not operating properly, the engineer shall stop the train and follow the procedures provided in § 238.15.

Subpart E--Specific Requirements for Tier II Passenger Equipment

§ 238.401 -- Scope.
This subpart contains specific requirements for railroad passenger equipment operating at speeds exceeding 125 mph but not exceeding 150 mph. The requirements of this subpart apply beginning on September 9, 1999. As stated in § 238.433(b), all such passenger equipment remains subject to the requirements concerning couplers and uncoupling devices contained in Federal statute at 49 U.S.C. chapter 203 and in FRA regulations at part 231 and § 232.2 of this chapter.

§ 238.403 -- Crash energy management.
(a) Each power car and trailer car shall be designed with a crash energy management system to dissipate kinetic energy during a collision. The crash energy management system shall provide a controlled deformation and collapse of designated sections within the unoccupied volumes to absorb collision energy and to reduce the decelerations on passengers and crewmembers resulting from dynamic forces transmitted to occupied volumes.
(b) The design of each unit shall consist of an occupied volume located between two normally unoccupied volumes. Where practical, sections within the unoccupied volumes shall be designed to be structurally weaker than the occupied volume. During a collision, the designated sections within the unoccupied volumes shall start to deform and eventually collapse in a controlled fashion to dissipate energy before any structural damage occurs to the occupied volume.
(c) At a minimum, each Tier II passenger train shall be designed to meet the following requirements:
   (1) Thirteen megajoules (MJ) shall be absorbed at each end of the train through the controlled crushing of unoccupied volumes, and of this amount a minimum of 5 MJ shall be absorbed ahead of the operator's cab in each power car;
   (2) A minimum of an additional 3 MJ shall be absorbed by the power car structure between the operator's cab and the first trailer car; and
   (3) The end of the first trailer car adjacent to each power car shall absorb a minimum of 5 MJ through controlled crushing.
(d) For a 30-mph collision of a Tier II passenger train on tangent, level track with an identical stationary train:

1) When seated anywhere in a trailer car, the velocity at which a 50th-percentile adult male contacts the seat back ahead of him shall not exceed 25 mph; and
2) The deceleration of the occupied volumes of each trailer car shall not exceed 8g. For the purpose of demonstrating compliance with this paragraph, deceleration measurements may be processed through a low-pass filter having a bandwidth of 50 Hz.

(e) Compliance with paragraphs (a) through (d) of this section shall be demonstrated by analysis using a dynamic collision computer model. For the purpose of demonstrating compliance, the following assumptions shall be made:

1) The train remains upright, in line, and with all wheels on the track throughout the collision; and
2) Resistance to structural crushing follows the force-versus-displacement relationship determined during the structural analysis required as part of the design of the train.

(f) Passenger seating shall not be permitted in the leading unit of a Tier II passenger train.

§ 238.405 -- Longitudinal static compressive strength.

(a) To form an effective crash refuge for crewmembers occupying the cab of a power car, the underframe of the cab of a power car shall resist a minimum longitudinal static compressive force of 2,100,000 pounds without permanent deformation to the cab, unless equivalent protection to crewmembers is provided under an alternate design approach, validated through analysis and testing, and approved by FRA under the provisions of § 238.21.

(b) The underframe of the occupied volume of each trailer car shall resist a minimum longitudinal static compressive force of 800,000 pounds without permanent deformation to the car. To demonstrate compliance with this requirement, the 800,000-pound load shall be applied to the underframe of the occupied volume as it would be transmitted to the underframe by the full structure of the vehicle.

(c) Unoccupied volumes of a power car or a trailer car designed to crush as part of the crash energy management design are not subject to the requirements of this section.

§ 238.407 -- Anti-climbing mechanism.

(a) Each power car shall have an anti-climbing mechanism at its forward end capable of resisting an ultimate upward or downward static vertical force of 200,000 pounds. A power car constructed with a crash energy management design is permitted to crush in a controlled manner before the anti-climbing mechanism fully engages.

(b) Interior train coupling points between units, including between units of articulated cars or other permanently joined units of cars, shall have an anti-climbing mechanism capable of resisting an upward or downward vertical force of 100,000 pounds without yielding.

(c) The forward coupler of a power car shall be attached to the car body to resist a vertical downward force of 100,000 pounds for any horizontal position of the coupler without yielding.
§ 238.409 -- Forward end structures of power car cabs.

This section contains requirements for the forward end structure of the cab of a power car. (A conceptual implementation of this end structure is provided in Figure 1 to this subpart.)

(a) **Center collision post.** The forward end structure shall have a full-height center collision post, or its structural equivalent, capable of withstanding the following:

1. A shear load of 500,000 pounds at its joint with the underframe without exceeding the ultimate strength of the joint;
2. A shear load of 150,000 pounds at its joint with the roof without exceeding the ultimate strength of the joint; and
3. A horizontal, longitudinal force of 300,000 pounds, applied at a point on level with the bottom of the windshield, without exceeding its ultimate strength.

(b) **Side collision posts.** The forward end structure shall have two side collision posts, or their structural equivalent, located at approximately the one-third points laterally, each capable of withstanding the following:

1. A shear load of 500,000 pounds at its joint with the underframe without exceeding the ultimate strength of the joint; and
2. A horizontal, longitudinal force of 300,000 pounds, applied at a point on level with the bottom of the windshield, without exceeding its ultimate strength.

(c) **Corner posts.** The forward end structure shall have two full-height corner posts, or their structural equivalent, each capable of withstanding the following:

1. A horizontal, longitudinal or lateral shear load of 300,000 pounds at its joint with the underframe, without exceeding the ultimate strength of the joint;
2. A horizontal, lateral force of 100,000 pounds applied at a point 30 inches up from the underframe attachment, without exceeding the yield or the critical buckling stress; and
3. A horizontal, longitudinal or lateral shear load of 80,000 pounds at its joint with the roof, without exceeding the ultimate strength of the joint.

(d) **Skin.** The skin covering the forward-facing end of each power car shall be:

1. Equivalent to a 1/2-inch steel plate with a 25,000 pounds-per-square-inch yield strength-material of a higher yield strength may be used to decrease the required thickness of the material provided at least an equivalent level of strength is maintained;
2. Securely attached to the end structure; and
3. Sealed to prevent the entry of fluids into the occupied cab area of the equipment. As used in paragraph (d), the term "skin" does not include forward-facing windows and doors.

§ 238.411 -- Rear end structures of power car cabs.

The rear end structure of the cab of a power car shall be designed to include the following elements, or their structural equivalent. (A conceptual implementation of this end structure is provided in Figure 2 to this subpart.)

(a) **Corner posts.** The rear end structure shall have two full-height corner posts, or their structural equivalent, each capable of withstanding the following:

1. A horizontal, longitudinal or lateral shear load of 300,000 pounds at its joint with the underframe without exceeding the ultimate strength of the joint; and
2. A horizontal, longitudinal or lateral shear load of 80,000 pounds at its joint with the roof without exceeding the ultimate strength of the joint.

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Collision posts. The rear end structure shall have two full-height collision posts, or their structural equivalent, each capable of withstanding the following:

1. A horizontal, longitudinal shear load of 500,000 pounds at its joint with the underframe without exceeding the ultimate strength of the joint; and
2. A horizontal, longitudinal shear load of 75,000 pounds at its joint with the roof without exceeding the ultimate strength of the joint.

§ 238.413 -- End structures of trailer cars.
(a) Except as provided in paragraph (b) of this section, the end structure of a trailer car shall be designed to include the following elements, or their structural equivalent. (A conceptual implementation of this end structure is provided in Figure 3 to this subpart.)

1. Corner posts. Two full-height corner posts, each capable of withstanding the following:
   (i) A horizontal, longitudinal shear load of 150,000 pounds at its joint with the underframe without exceeding the ultimate strength of the joint;
   (ii) A horizontal, longitudinal or lateral force of 30,000 pounds applied at a point 18 inches up from the underframe attachment without exceeding the yield or the critical buckling stress; and
   (iii) A horizontal, longitudinal or lateral shear load of 20,000 pounds at its joint with the roof without exceeding the ultimate strength of the joint.
2. Collision posts. Two full-height collision posts each capable of withstanding the following:
   (i) A horizontal, longitudinal shear load of 300,000 pounds at its joint with the underframe without exceeding the ultimate strength of the joint; and
   (ii) A horizontal, longitudinal shear load of 60,000 pounds at its joint with the roof without exceeding the ultimate strength of the joint.
(b) If the trailer car is designed with an end vestibule, the end structure inboard of the vestibule shall have two full-height corner posts, or their structural equivalent, each capable of withstanding the following (A conceptual implementation of this end structure is provided in Figure 4 to this subpart):

1. A horizontal, longitudinal shear load of 200,000 pounds at its joint with the underframe without exceeding the ultimate strength of the joint;
2. A horizontal, lateral force of 30,000 pounds applied at a point 18 inches up from the underframe attachment without exceeding the yield or the critical buckling stress;
3. A horizontal, longitudinal force of 50,000 pounds applied at a point 18 inches up from the underframe attachment without exceeding the yield or the critical buckling stress; and
4. A horizontal, longitudinal or lateral shear load of 20,000 pounds at its joint with the roof without exceeding the ultimate strength of the joint.

§ 238.415 -- Rollover strength.
(a) Each passenger car and power car shall be designed to rest on its side and be uniformly supported at the top ("roof rail") and the bottom chords ("side sill") of the side frame. The allowable stress in the structural members of the occupied volumes for this condition shall be one-half yield or one-half the critical buckling stress, whichever is less. Minor localized deformations to the outer side skin of the passenger car or power car is
allowed provided such deformations in no way intrude upon the occupied volume of each car.

(b) Each passenger car and power car shall also be designed to rest on its roof so that any damage in occupied areas is limited to roof sheathing and framing. The allowable stress in the structural members of the occupied volumes for this condition shall be one-half yield or one-half the critical buckling stress, whichever is less. Deformation to the roof sheathing and framing is allowed to the extent necessary to permit the vehicle to be supported directly on the top chords of the side frames and end frames.

§ 238.417 -- Side loads.

(a) Each passenger car body structure shall be designed to resist an inward transverse load of 80,000 pounds of force applied to the side sill and 10,000 pounds of force applied to the belt rail (horizontal members at the bottom of the window opening in the side frame).

(b) These loads shall be considered to be applied separately over the full vertical dimension of the specified member for any distance of 8 feet in the direction of the length of the car.

(c) The allowable stress shall be the lesser of the yield stress, except as otherwise allowed by this paragraph, or the critical buckling stress. In calculating the stress to show compliance with this requirement, local yielding of the side skin adjacent to the side sill and belt rail, and local yielding of the side sill bend radii at the crossbearer and floor-beam connections is allowed. For purposes of this paragraph, local yielding is allowed provided the resulting deformations in no way intrude upon the occupied volume of the car.

(d) The connections of the side frame to the roof and underframe shall support the loads specified in this section.

§ 238.419 -- Truck-to-car-body and truck component attachment.

(a) The ultimate strength of the truck-to-car-body attachment for each unit in a train shall be sufficient to resist without failure the following individually applied loads: a vertical force equivalent to 2g acting on the mass of the truck; and a force of 250,000 pounds acting in any horizontal direction on the truck, along with the resulting vertical reaction to this load.

(b) Each component of a truck (which include axles, wheels, bearings, the truck-mounted brake system, suspension system components, and any other components attached to the truck by design) shall remain attached to the truck when a force equivalent to 2g acting on the mass of the component is exerted in any direction on that component.

§ 238.421 -- Glazing.

(a) General. Except as provided in paragraphs (b) and (c) of this section, each exterior window on a passenger car and a power car cab shall comply with the requirements contained in part 223 of this chapter.

(b) Particular end-facing exterior glazing requirements. Each end-facing exterior window in a passenger car and a power car cab shall also, in the orientation in which it is installed in the car:
(1) Resist the impact of a 12-pound solid steel sphere traveling (i) at the maximum speed at which the car will operate (ii) at an impact angle no less severe than horizontal to the car, with no penetration or spall. An impact angle that is perpendicular (90 degrees) to the window's surface shall be considered the most severe impact angle for purposes of this requirement; and

(2) Demonstrate anti-spalling performance by the use of a 0.001 inch thick aluminum witness plate, placed 12 inches from the window's surface during all impact tests. The witness plate shall contain no marks from spalled glazing particles after any impact test; and

(3) Be permanently marked, prior to installation, in such a manner that the marking is clearly visible after the material has been installed. The marking shall include:

(i) The words "FRA TYPE IHP" to indicate that the material has successfully passed the testing requirements specified in this paragraph;
(ii) The name of the manufacturer; and
(iii) The type or brand identification of the material.

(c) Passenger equipment ordered prior to May 12, 1999. Each exterior window in passenger equipment ordered prior to May 12, 1999, may comply with the following glazing requirements in lieu of the requirements specified in paragraphs (a) and (b) of this section:

(1) Each end-facing exterior window shall, in the orientation in which it is installed in the vehicle, resist the impact of a 12-pound solid steel sphere traveling (i) at the maximum speed at which the vehicle will operate (ii) at an impact angle no less severe than horizontal to the vehicle, with no penetration or spall. An impact angle that is perpendicular to the window's surface shall be considered the most severe impact angle for purposes of this requirement.

(2) Each side-facing exterior window shall resist the impact of:

(i) 12-pound solid steel sphere at 15 mph, at an angle of 90 degrees to the window's surface, with no penetration or spall; and
(ii) A granite ballast stone weighing a minimum of 0.5 pounds, traveling at 75 mph and impacting at a 90-degree angle to the window's surface, with no penetration or spall.

(3) All exterior windows shall:

(i) Resist a single impact of a 9-mm, 147-grain bullet traveling at an impact velocity of 900 feet per second, with no bullet penetration or spall; and
(ii) Demonstrate anti-spalling performance by the use of a 0.002 inch thick aluminum witness plate, placed 12 inches from the window's surface during all impact tests. The witness plate shall contain no marks from spalled glazing particles after any impact test.

(iii) Be permanently marked, prior to installation, in such a manner that the marking is clearly visible after the material has been installed. The marking shall include:

(A) The words "FRA TYPE IH" for end-facing glazing or "FRA TYPE IIH" for side-facing glazing, to indicate that the material has successfully passed the testing requirements of this section;
(B) The name of the manufacturer; and
(C) The type or brand identification of the material.

(d) Glazing securement. Each exterior window on a passenger car and a power car cab shall remain in place when subjected to:
(1) The forces due to air pressure differences caused when two trains pass at the minimum separation for two adjacent tracks, while traveling in opposite directions, each train traveling at the maximum authorized speed; and

(2) The impact forces that the glazed window is required to resist as specified in this section.

(e) **Stenciling.** Each car that is fully equipped with glazing materials that meet the requirements of this section shall be stenciled on an interior wall as follows: "Fully Equipped with FRA Part 238 Glazing" or similar words conveying that meaning, in letters at least 3/8 of an inch high.

§ 238.423 -- Fuel tanks.

(a) **External fuel tanks.** Each type of external fuel tank must be approved by FRA's Associate Administrator for Safety upon a showing that the fuel tank provides a level of safety at least equivalent to a fuel tank that complies with the external fuel tank requirements in § 238.223(a).

(b) **Internal fuel tanks.** Internal fuel tanks shall comply with the requirements specified in § 238.223(b).

§ 238.425 -- Electrical system.

(a) **Circuit protection.**

(1) The main propulsion power line shall be protected with a lightning arrester, automatic circuit breaker, and overload relay. The lightning arrester shall be run by the most direct path possible to ground with a connection to ground of not less than No. 6 AWG. These overload protection devices shall be housed in an enclosure designed specifically for that purpose with the arc chute vented directly to outside air.

(2) Head end power, including trainline power distribution, shall be provided with both overload and ground fault protection.

(3) Circuits used for purposes other than propelling the equipment shall be connected to their power source through circuit breakers or equivalent current-limiting devices.

(4) Each auxiliary circuit shall be provided with a circuit breaker located as near as practical to the point of connection to the source of power for that circuit; however, such protection may be omitted from circuits controlling safety-critical devices.

(b) **Main battery system.**

(1) The main batteries shall be isolated from the cab and passenger seating areas by a non-combustible barrier.

(2) Battery chargers shall be designed to protect against overcharging.

(3) Battery circuits shall include an emergency battery cut-off switch to completely disconnect the energy stored in the batteries from the load.

(4) If batteries are of the type to potentially vent explosive gases, the batteries shall be adequately ventilated to prevent accumulation of explosive concentrations of these gases.

(c) **Power dissipation resistors.**

(1) Power dissipating resistors shall be adequately ventilated to prevent overheating under worst-case operating conditions.

(2) Power dissipation grids shall be designed and installed with sufficient isolation to prevent combustion between resistor elements and combustible material.
(3) Power dissipation resistor circuits shall incorporate warning or protective devices for low ventilation air flow, over-temperature, and short circuit failures.

(4) Resistor elements shall be electrically insulated from resistor frames, and the frames shall be electrically insulated from the supports that hold them.

(d) **Electromagnetic interference and compatibility.**

(1) The operating railroad shall ensure electromagnetic compatibility of the safety-critical equipment systems with their environment. Electromagnetic compatibility can be achieved through equipment design or changes to the operating environment.

(2) The electronic equipment shall not produce electrical noise that interferes with trainline control and communications or with wayside signaling systems.

(3) To contain electromagnetic interference emissions, suppression of transients shall be at the source wherever possible.

(4) Electrical and electronic systems of equipment shall be capable of operation in the presence of external electromagnetic noise sources.

(5) All electronic equipment shall be self-protected from damage or improper operation, or both, due to high voltage transients and long-term over-voltage or under-voltage conditions.

§ 238.427 -- Suspension system

(a) **General requirements.**

(1) Suspension systems shall be designed to reasonably prevent wheel climb, wheel unloading, rail rollover, rail shift, and a vehicle from overturning to ensure safe, stable performance and ride quality. These requirements shall be met:

   (i) In all operating environments, and under all track conditions and loading conditions as determined by the operating railroad; and

   (ii) At all track speeds and over all track qualities consistent with the Track Safety Standards in part 213 of this chapter, up to the maximum operating speed and maximum cant deficiency of the equipment.

(2) Passenger equipment shall meet the safety performance standards for suspension systems contained in Appendix C to this part, or alternative standards providing at least equivalent safety if approved by FRA under the provisions of § 238.21.

(b) **Car body accelerations.**

(1) A passenger car shall not operate under conditions that result in a steady-state lateral acceleration greater than 0.12g as measured parallel to the car floor inside the passenger compartment. During pre-revenue service acceptance testing of the equipment under § 238.111 and § 213.345 of this chapter, a passenger car shall demonstrate that steady-state lateral acceleration does not exceed 0.1g at the maximum intended cant deficiency.

(2) While traveling at the maximum operating speed over the intended route, the train suspension system shall be designed to:

   (i) Limit the vertical acceleration, as measured by a vertical accelerometer mounted on the car floor, to no greater than 0.55g single event, peak-to-peak over a one second period;

   (ii) Limit lateral acceleration, as measured by a lateral accelerometer mounted on the car floor, to no greater than 0.3g single event, peak-to-peak over a one second period; and
(iii) Limit the combination of lateral acceleration \(a_L\) and vertical acceleration \(a_V\) occurring over a one second period as expressed by the square root of \((a_L^2 + a_V^2)\) to no greater than 0.6g, where \(a_L\) may not exceed 0.3g and \(a_V\) may not exceed 0.55g. Compliance with the requirements of paragraph (b)(2) shall be demonstrated during the pre-revenue service acceptance testing of the equipment required under § 238.111 and § 213.345 of this chapter.

(3) For purposes of this paragraph:
   (i) Car body acceleration measurements shall be processed through a filter having a cut-off frequency of 10 Hz; and
   (ii) Steady-state lateral acceleration shall be computed as the mathematical average of the accelerations in the body of a curve, between the spiral/curve points. In a compound curve, steady-state lateral acceleration shall be measured separately for each curve.

(c) Truck hunting acceleration. Each truck shall be equipped with a permanently installed lateral accelerometer mounted on the truck frame. The accelerometer output signals shall be processed through a filter having a band pass of 0.5 to 10 Hz to determine if hunting oscillations of the truck are occurring. If hunting oscillations are detected, the train monitoring system shall provide an alarm to the operator, and the train shall be slowed to a speed at least 5 mph less than the speed at which the hunting oscillations stopped. For purposes of this paragraph, hunting oscillations are considered a sustained cyclic oscillation of the truck which is evidenced by lateral accelerations in excess of 0.4g root mean square (mean-removed) for 2 seconds.

(d) Overheat sensors. Overheat sensors for each wheelset journal bearing shall be provided. The sensors may be placed either onboard the equipment or at reasonable intervals along the railroad's right-of-way.

§ 238.429 -- Safety appliances.
(a) Couplers.
   (1) The leading and the trailing ends of a semi-permanently coupled trainset shall each be equipped with an automatic coupler that couples on impact and uncouples by either activation of a traditional uncoupling lever or some other type of uncoupling mechanism that does not require a person to go between the equipment units.
   (2) The automatic coupler and uncoupling device on the leading and trailing ends of a semi-permanently coupled trainset may be stored within a removable shrouded housing.
   (3) If the units in a train are not semi-permanently coupled, both ends of each unit shall be equipped with an automatic coupler that couples on impact and uncouples by either activation of a traditional uncoupling lever or some other type of uncoupling mechanism that does not require a person to go between the equipment units.
(b) Hand brakes. Except as provided in paragraph (f) of this section, Tier II trains shall be equipped with a parking or hand brake that can be applied and released manually and that is capable of holding the train on a 3-percent grade.
(c) Safety appliance mechanical strength and fasteners.
(1) All handrails, handholds, and sill steps shall be made of 1-inch diameter steel pipe, 5/8-inch thickness steel, or a material of equal or greater mechanical strength.

(2) All safety appliances shall be securely fastened to the car body structure with mechanical fasteners that have mechanical strength greater than or equal to that of a 1/2-inch diameter SAE grade steel bolt mechanical fastener.

   (i) Safety appliance mechanical fasteners shall have mechanical strength and fatigue resistance equal to or greater than a 1/2-inch diameter SAE steel bolt.

   (ii) Mechanical fasteners shall be installed with a positive means to prevent unauthorized removal. Self-locking threaded fasteners do not meet this requirement.

   (iii) Mechanical fasteners shall be installed to facilitate inspection.

(d) Handrails and handholds. Except as provided in paragraph (f) of this section:

(1) Handrails shall be provided for passengers on both sides of all steps used to board or depart the train.

(2) Exits on a power vehicle shall be equipped with handrails and handholds so that crewmembers can get on and off the vehicle safely.

(3) Throughout their entire length, handrails and handholds shall be a color that contrasts with the color of the vehicle body to which they are fastened.

(4) The maximum distance above the top of the rail to the bottom of vertical handrails and handholds shall be 51 inches, and the minimum distance shall be 21 inches.

(5) Vertical handrails and handholds shall be installed to continue to a point at least equal to the height of the top edge of the control cab door.

(6) The minimum hand clearance distance between a vertical handrail or handhold and the vehicle body shall be 2 1/2 inches for the entire length.

(7) All vertical handrails and handholds shall be securely fastened to the vehicle body.

(8) If the length of the handrail exceeds 60 inches, it shall be securely fastened to the power vehicle body with two fasteners at each end.

(e) Sill steps. Except as provided in paragraph (f) of this section, each power vehicle shall be equipped with a sill step below each exterior door as follows:

(1) The sill step shall have a minimum cross-sectional area of 1/2 by 3 inches;

(2) The sill step shall be made of steel or a material of equal or greater strength and fatigue resistance;

(3) The minimum tread length of the sill step shall be 10 inches;

(4) The minimum clear depth of the sill step shall be 8 inches;

(5) The outside edge of the tread of the sill step shall be flush with the side of the car body structure;

(6) Sill steps shall not have a vertical rise between treads exceeding 18 inches;

(7) The lowest sill step tread shall be not more than 24, preferably not more than 22, inches above the top of the track rail;

(8) Sill steps shall be a color that contrasts with the color of the power vehicle body to which they are fastened;

(9) Sill steps shall be securely fastened;

(10) At least 50 percent of the tread surface area of each sill step shall be open space; and

(11) The portion of the tread surface area of each sill step which is not open space and is normally contacted by the foot shall be treated with an anti-skid material.

(f) Exceptions.
(1) If the units of the equipment are semi-permanently coupled, with uncoupling done only at maintenance facilities, the equipment units that are not required by paragraph (a) of this section to be equipped with automatic couplers need not be equipped with sill steps or end or side handholds that would normally be used to safely perform coupling and uncoupling operations.

(2) If the units of the equipment are not semi-permanently coupled, the units shall be equipped with hand brakes, sill steps, end handholds, and side handholds that meet the requirements contained in § 231.14 of this chapter.

(3) If two trainsets are coupled to form a single train that is not semi-permanently coupled (i.e., that is coupled by an automatic coupler), the automatically coupled ends shall be equipped with an end handhold that is located and installed so that an individual can safely couple and uncouple the trainsets. The end handhold shall be not more than 16 inches from each side of the car and shall extend the remaining length of the end of the car. (If the equipment is designed with a tapered nose, the side of the car shall be determined based on the outer dimension of the tapered nose where the end handhold is attached.) The end handhold shall also meet the mechanical strength and design requirements contained in paragraphs (c), (d)(3), and (d)(6) of this section. If the trainsets are semi-permanently coupled, this safety appliance is not required.

(g) Optional safety appliances. Safety appliances installed at the option of the railroad shall be firmly attached with mechanical fasteners and shall meet the design and installation requirements provided in this section.

§ 238.431 -- Brake system.
(a) A passenger train's brake system shall be capable of stopping the train from its maximum operating speed within the signal spacing existing on the track over which the train is operating under worst-case adhesion conditions.
(b) The brake system shall be designed to allow an inspector to determine that the brake system is functioning properly without having to place himself or herself in a dangerous position on, under, or between the equipment.
(c) Passenger equipment shall be provided with an emergency brake application feature that produces an irretrievable stop, using a brake rate consistent with prevailing adhesion, passenger safety, and brake system thermal capacity. An emergency brake application shall be available at any time, and shall be initiated by an unintentional parting of the train. A means to initiate an emergency brake application shall be provided at two locations in each unit of the train; however, where a unit of the train is 45 feet or less in length a means to initiate an emergency brake application need only be provided at one location in the unit.
(d) The brake system shall be designed to prevent thermal damage to wheels and brake discs. The operating railroad shall demonstrate through analysis and testing that no thermal damage results to the wheels or brake discs under conditions resulting in maximum braking effort being exerted on the wheels or discs.
(e) The following requirements apply to blended braking systems:
   (1) Loss of power or failure of the dynamic brake does not result in exceeding the allowable stopping distance;
   (2) The friction brake alone is adequate to safely stop the train under all operating conditions;
The operational status of the electric portion of the brake system shall be displayed for the train operator in the control cab; and

The operating railroad shall demonstrate through analysis and testing the maximum operating speed for safe operation of the train using only the friction brake portion of the blended brake with no thermal damage to wheels or discs.

The brake system design shall allow a disabled train's pneumatic brakes to be controlled by a conventional locomotive, during a rescue operation, through brake pipe control alone.

An independent failure-detection system shall compare brake commands with brake system output to determine if a failure has occurred. The failure detection system shall report brake system failures to the automated train monitoring system.

Passenger equipment shall be equipped with an adhesion control system designed to automatically adjust the braking force on each wheel to prevent sliding during braking. In the event of a failure of this system to prevent wheel slide within preset parameters, a wheel slide alarm that is visual or audible, or both, shall alert the train operator in the cab of the controlling power car to wheel-slide conditions on any axle of the train.

§ 238.433 -- Draft system.

(a) Leading and trailing automatic couplers of trains shall be compatible with standard AAR couplers with no special adapters used.

(b) All passenger equipment continues to be subject to the requirements concerning couplers and uncoupling devices contained in Federal Statute at 49 U.S.C. chapter 203 and in FRA regulations at part 231 and § 232.2 of this chapter.

§ 238.435 -- Interior fittings and surfaces.

(a) Each seat back and seat attachment in a passenger car shall be designed to withstand, with deflection but without total failure, the load associated with the impact into the seat back of an unrestrained 95th-percentile adult male initially seated behind the seat back, when the floor to which the seat is attached decelerates with a triangular crash pulse having a peak of 8g and a duration of 250 milliseconds.

(b) Each seat back in a passenger car shall include shock-absorbent material to cushion the impact of occupants with the seat ahead of them.

(c) The ultimate strength of each seat attachment to a passenger car body shall be sufficient to withstand the following individually applied accelerations acting on the mass of the seat plus the mass of a seat occupant who is a 95th-percentile adult male:

(1) Lateral: 4g; and
(2) Vertical: 4g.

(d) Other interior fittings shall be attached to the passenger car body with sufficient strength to withstand the following individually applied accelerations acting on the mass of the fitting:

(i) Longitudinal: 8g;
(ii) Lateral: 4g; and
(iii) Vertical: 4g.

(2) Fittings that can be expected to be impacted by a person during a collision, such as tables between facing seats, shall be designed for the mass of the fitting plus the mass of the number of occupants who are 95th-percentile adult males that could be
expected to strike the fitting, when the floor of the passenger car decelerates with a triangular crash pulse having a peak of 8g and a duration of 250 milliseconds.

(e) The ultimate strength of the interior fittings and equipment in power car control cabs shall be sufficient to resist without failure loads due to the following individually applied accelerations acting on the mass of the fitting or equipment:
   (1) Longitudinal: 12g;
   (2) Lateral: 4g; and
   (3) Vertical: 4g.

(f) To the extent possible, interior fittings, except seats, shall be recessed or flush-mounted. Corners and sharp edges shall be avoided or otherwise padded.

(g) Energy-absorbent material shall be used to pad surfaces likely to be impacted by occupants during collisions or derailments.

(h) Luggage stowage compartments shall be enclosed, and have an ultimate strength sufficient to resist loads due to the following individually applied accelerations acting on the mass of the luggage that the compartments are designed to accommodate:
   (1) Longitudinal: 8g;
   (2) Lateral: 4g; and
   (3) Vertical: 4g.

(i) If, for purposes of showing compliance with the requirements of this section, the strength of a seat attachment is to be demonstrated through sled testing, the seat structure and seat attachment to the sled that are used in such testing must be representative of the actual seat structure in, and seat attachment to, the rail vehicle subject to the requirements of this section. If the attachment strength of any other interior fitting is to be demonstrated through sled testing, for purposes of showing compliance with the requirements of this section, such testing shall be conducted in a similar manner.

§ 238.437 -- Emergency communication.

A means of emergency communication throughout a train shall be provided and shall include the following:

(a) Except as further specified, transmission locations at each end of each passenger car, adjacent to the car's end doors, and accessible to both passengers and crewmembers without requiring the use of a tool or other implement. If the passenger car does not exceed 45 feet in length, or if the passenger car was ordered prior to May 12, 1999, only one transmission location is required;

(b) Transmission locations that are clearly marked with luminescent material;

(c) Clear and understandable operating instructions at or near each transmission location; and

(d) Back-up power for a minimum period of 90 minutes.

§ 238.439 -- Doors.

(a) Each passenger car shall have a minimum of two exterior side doors, each door providing a minimum clear opening with dimensions of 30 inches horizontally by 74 inches vertically.

Note: The Americans with Disabilities Act (ADA) Accessibility Specifications for Transportation Vehicles also contain requirements for doorway clearance (See 49 CFR part 38).
(b) Each passenger car shall be equipped with a manual override feature for each powered, exterior side door. Each manual override must be:

1. Capable of releasing the door to permit it to be opened, without power, from both inside and outside the car;
2. Located adjacent to the door which it controls; and
3. Designed and maintained so that a person may readily access and operate the override device from both inside and outside the car without the use of any tool or other implement.

(c) The status of each powered, exterior side door in a passenger car shall be displayed to the crew in the operating cab. If door interlocks are used, the sensors used to detect train motion shall be nominally set to operate at 3 mph.

(d) Each powered, exterior side door in a passenger car shall be connected to an emergency back-up power system.

(e) A railroad may protect a manual override device used to open a powered, exterior door with a cover or a screen capable of removal without requiring the use of a tool or other implement.

(f) A passenger compartment end door (other than a door providing access to the exterior of the trainset) shall be equipped with a kick-out panel, pop-out window, or other similar means of egress in the event the door will not open, or shall be so designed as to pose a negligible probability of becoming inoperable in the event of car body distortion following a collision or derailment.

(g) Door exits shall be marked, and instructions provided for their use, as required by § 239.107(a) of this chapter.

§ 238.441 -- Emergency roof entrance location.

(a) Each passenger car and power car cab shall have a minimum of one roof hatch emergency entrance location with a minimum opening of 18 inches by 24 inches, or at least one clearly marked structural weak point in the roof having a minimum opening of the same dimensions to provide quick access for properly equipped emergency response personnel.

(b) Marking and instructions. [Reserved]

§ 238.443 -- Headlights.

(a) Each power car shall be equipped with at least two headlights. Each headlight shall produce no less than 200,000 candela. One headlight shall be arranged to illuminate a person standing between the rails 800 feet ahead of the power car under clear weather conditions. The other headlight shall be arranged to illuminate a person standing between the rails 1,500 feet ahead of the power car under clear weather conditions.

(b) A power car with a headlight not in compliance with the requirements of paragraph (a) of this section shall be moved in accordance with the following:

1. If one of the headlights is defective, the defect shall be considered a non-running gear defect subject to the provisions contained in § 238.17 of this part.
2. If both headlights are defective, the power car shall be inspected and tagged in accordance with the requirements contained in § 238.17(c) relating to non-running gear defects. The power car may continue to be used in passenger service only to the nearest forward location where the repairs necessary to bring the power car into compliance can
be made or to the power car's next calendar day mechanical inspection, whichever occurs first.

§ 238.445 -- Automated monitoring.
(a) Each passenger train shall be equipped to monitor the performance of the following systems or components:
   (1) Reception of cab signals and train control signals;
   (2) Truck hunting;
   (3) Dynamic brake status;
   (4) Friction brake status;
   (5) Fire detection systems;
   (6) Head end power status;
   (7) Alerter or deadman control;
   (8) Horn and bell;
   (9) Wheel slide;
   (10) Tilt system, if so equipped; and
   (11) On-board bearing-temperature sensors, if so equipped.
(b) When any such system or component is operating outside of its predetermined safety parameters:
   (1) The train operator shall be alerted; and
   (2) Immediate corrective action shall be taken, if the system or component defect impairs the train operator's ability to safely operate the train. Immediate corrective action includes limiting that the monitoring capability is functioning correctly and alerts the train operator when a system failure occurs.

§ 238.447 -- Train operator's controls and power car cab layout.
(a) Train operator controls in the power car cab shall be arranged so as to minimize the chance of human error, and be comfortably within view and within easy reach when the operator is seated in the normal train control position.
(b) The train operator's control panel buttons, switches, levers, knobs, and the like shall be distinguishable by sight and by touch.
(c) An alerter shall be provided in the power car cab. If not acknowledged, the alerter shall cause a brake application to stop the train.
(d) Power car cab information displays shall be designed with the following characteristics:
   (1) Simplicity and standardization shall be the driving criteria for design of formats for the display of information in the cab;
   (2) Essential, safety-critical information shall be displayed as a default condition;
   (3) Operator selection shall be required to display other than default information;
   (4) Cab or train control signals shall be displayed for the operator; and
   (5) Displays shall be readable from the operator’s normal position under all lighting conditions.
(e) The power car cab shall be designed so at to permit the crew to have an effective field of view in the forward direction, as well as to the right and left of the direction of travel to observe objects approaching the train from either side. Field-of-view obstructions due to required structural members shall be minimized.
(f) Each seat provided for an employee regularly assigned to occupy a power car cab and any floor-mounted seat in the cab shall be:
   (1) Secured to the car body with an attachment having an ultimate strength capable of withstanding the loads due to the following individually applied accelerations acting on the combined mass of the seat and the mass of a seat occupant who is a 95th-percentile adult male:
      (i) Longitudinal: 12g;
      (ii) Lateral: 4g; and
      (iii) Vertical: 4g.
   (2) Designed so that all adjustments have the range necessary to accommodate a person ranging from a 5th-percentile adult female to a 95th-percentile adult male, as persons possessing such characteristics are specified, correcting for clothing as appropriate, in any recognized survey after 1958 of weight, height, and other body dimensions of U.S. adults;
   (3) Equipped with lumbar support that is adjustable from the seated position;
   (4) Equipped with force-assisted, vertical-height adjustment, operated from the seated position;
   (5) Equipped with a manually reclining seat back, adjustable from the seated position;
   (6) Equipped with an adjustable headrest; and
   (7) Equipped with folding, padded armrests.
(g) Sharp edges and corners shall be eliminated from the interior of the power car cab, and interior surfaces of the cab likely to be impacted by an employee during a collision or derailment shall be padded with shock-absorbent material.

See Figures 1-4 -- to Subpart.E.

Subpart F--Inspection, Testing, and Maintenance Requirements for Tier II Passenger Equipment.

§ 238.501 -- Scope.
This subpart contains inspection, testing, and maintenance requirements for railroad passenger equipment that operates at speeds exceeding 125 mph but not exceeding 150 mph.

§ 238.503 -- Inspection, testing, and maintenance requirements.
(a) General. Under the procedures provided in § 238.505, each railroad shall obtain FRA approval of a written inspection, testing, and maintenance program for Tier II passenger equipment prior to implementation of that program and prior to commencing passenger operations using that equipment. As further specified in this section, the program shall describe in detail the procedures, equipment, and other means necessary for the safe operation of the passenger equipment, including:
   (1) Inspection procedures, intervals, and criteria;
   (2) Testing procedures and intervals;
   (3) Scheduled preventive-maintenance intervals;
   (4) Maintenance procedures;
(5) Special testing equipment or measuring devices required to perform inspections, tests, and maintenance; and
(6) The training, qualification, and designation of employees and contractors to perform inspections, tests, and maintenance.

(b) **Compliance.** After the railroad's inspection, testing, and maintenance program is approved by FRA under § 238.505, the railroad shall adopt the program and shall perform-

1. The inspections and tests of power brakes and other primary brakes as described in the program;
2. The other inspections and tests described in the program in accordance with the procedures and criteria that the railroad identified as safety-critical; and
3. The maintenance tasks described in the program in accordance with the procedures and intervals that the railroad identified as safety-critical.

(c) **General safety inspection, testing, and maintenance procedures.** The inspection, testing, and maintenance program under paragraph (a) of this section shall contain the railroad's written procedures to ensure that all systems and components of in service passenger equipment are free of any general condition that endangers the safety of the crew, passengers, or equipment. These procedures shall protect against:

1. A continuous accumulation of oil or grease;
2. Improper functioning of a component;
3. A crack, break, excessive wear, structural defect, or weakness of a component;
4. A leak;
5. Use of a component or system under a condition that exceeds that for which the component or system is designed to operate; and
6. Insecure attachment of a component.

(d) **Specific inspections.** The program under paragraph (a) of this section shall specify that all Tier II passenger equipment shall receive thorough inspections in accordance with the following standards:

1. Except as provided in paragraph (d)(3) of this section, the equivalent of a Class I brake test contained in § 238.313 shall be conducted prior to a train's departure from an originating terminal and every 1,500 miles or once each calendar day, whichever comes first, that the train remains in continuous service.
   (i) Class I equivalent brake tests shall be performed by a qualified maintenance person.
   (ii) Except as provided in § 238.15(b), a railroad shall not use or haul a Tier II passenger train in passenger service from a location where a Class I equivalent brake test has been performed, or was required by this part to have been performed, with less than 100 percent operative brakes.
2. Except as provided in paragraph (d)(3) of this section, a complete exterior and interior mechanical inspection, in accordance with the railroad's inspection program, shall be conducted by a qualified maintenance person at least once during each calendar day the equipment is used in service.
3. Trains that miss a scheduled Class I brake test or mechanical inspection due to a delay en route may proceed to the point where the Class I brake test or mechanical inspection was scheduled to be performed.

(e) **Movement of trains with power brake defects.** Movement of trains with a power brake defect as defined in § 238.15 (any primary brake defect) shall be governed by § 238.15.
(f) **Movement of trains with other defects.** The movement of a train with a defect other than a power brake defect shall be conducted in accordance with §238.17, with the following exceptions:

1. The movement of a Tier II power car with a non-complying headlight shall be conducted in accordance with §238.443(b) of this part; and
2. When a failure of a secondary brake on a Tier II passenger train occurs en route, that train may remain in service until its next scheduled calendar day Class I brake test equivalent at a speed no greater than the maximum safe operating speed demonstrated through analysis and testing for braking with the friction brake alone. The brake system shall be restored to 100 percent operation before the train departs that inspection location.

(g) **Maintenance intervals.** The program under paragraph (a) of this section shall include the railroad's initial scheduled maintenance intervals for Tier II equipment based on an analysis completed pursuant to the railroad's safety plan. The maintenance interval of a safety-critical component shall be changed only when justified by accumulated, verifiable operating data and approved by FRA under §238.505 before the change takes effect.

(h) **Training, qualification, and designation program.** The program under paragraph (a) of this section shall describe the training, qualification, and designation program, as defined in the training program plan under §238.109, established by the railroad to qualify individuals to inspect, test, and maintain the equipment.

1. If the railroad deems it safety-critical, then only qualified individuals shall inspect, test, and maintain the equipment.
2. Knowledge of the procedures described in paragraph (a) of this section shall be required to qualify an employee or contractor to perform an inspection, testing, or maintenance task under this part.

(i) **Standard procedures.** The program under paragraph (a) of this section shall include the railroad's written standard procedures for performing all safety-critical equipment inspection, testing, maintenance, and repair tasks necessary to ensure the safe and proper operation of the equipment. The inspection, testing, and maintenance program required by this section is not intended to address and should not include procedures to address employee working conditions that arise in the course of conducting the inspections, tests, and maintenance set forth in the program. When reviewing the railroad's program, FRA does not intend to review any portion of the program that relates to employee working conditions.

(j) **Annual review.** The inspection, testing, and maintenance program required by this section shall be reviewed by the railroad annually.

(k) **Quality control program.** Each railroad shall establish an inspection, testing, and maintenance quality control program enforced by railroad or contractor supervisors to reasonably ensure that inspections, tests, and maintenance are performed in accordance with Federal safety standards and the procedures established by the railroad.

(l) **Identification of safety-critical items.** In the program under paragraph (a) of this section, the railroad shall identify all inspection and testing procedures and criteria as well as all maintenance intervals that the railroad deems to be safety-critical.

§238.505 -- Program approval procedure.
(a) Submission. Not less than 90 days prior to commencing passenger operations using Tier II passenger equipment, each railroad to which this subpart applies shall submit for approval an inspection, testing, and maintenance program for that equipment meeting the requirements of this subpart with the Associate Administrator for Safety, Federal Railroad Administration, 1120 Vermont Ave, Mail Stop 25, Washington, D.C. 20590. If a railroad seeks to amend an approved program, the railroad shall file with FRA's Associate Administrator for Safety a petition for approval of such amendment not less than 60 days prior to the proposed effective date of the amendment. A program responsive to the requirements of this subpart or any amendment to the program shall not be implemented prior to FRA approval.

1. Each program or amendment under § 238.503 shall contain:
   (i) The information prescribed in § 238.503 for such program or amendment;
   (ii) The name, title, address, and telephone number of the primary person to be contacted with regard to review of the program or amendment; and
   (iii) A statement affirming that the railroad has served a copy of the program or amendment on designated representatives of railroad employees, together with a list of the names and addresses of persons served.

2. Each railroad shall serve a copy of each submission to FRA on designated representatives of railroad employees responsible for the equipment's operation, inspection, testing, and maintenance under this subpart.

(b) Comment. Not later than 45 days from the date of filing the program or amendment, any person may comment on the program or amendment.

1. Each comment shall set forth specifically the basis upon which it is made, and contain a concise statement of the interest of the commenter in the proceeding.

2. Three copies of each comment shall be submitted to the Associate Administrator for Safety, Federal Railroad Administration, 1120 Vermont Ave., Mail Stop 25, Washington, D.C. 20590.

3. The commenter shall certify that a copy of the comment was served on the railroad.

(c) Approval.

1. Within 60 days of receipt of each initial inspection, testing, and maintenance program, FRA will conduct a formal review of the program. FRA will then notify the primary railroad contact person and the designated employee representatives in writing whether the inspection, testing, and maintenance program is approved and, if not approved, the specific points in which the program is deficient. If a program is not approved by FRA, the railroad shall amend its program to correct all deficiencies and resubmit its program with the required revisions not later than 45 days prior to commencing passenger operations.

2. FRA will review each proposed amendment to the program within 45 days of receipt. FRA will then notify the primary railroad contact person and the designated employee representatives in writing whether the proposed amendment has been approved by FRA and, if not approved, the specific points in which the proposed amendment is deficient. The railroad shall correct any deficiencies and file the corrected amendment prior to implementing the amendment.

3. Following initial approval of a program or amendment, FRA may reopen consideration of the program or amendment for cause stated.
Subpart G-- Specific Safety Planning Requirements for Tier II Passenger Equipment

§ 238.601 – Scope.
This subpart contains specific safety planning requirements for the operation of Tier II passenger equipment, procurement of Tier II passenger equipment, and the introduction or major upgrade of new technology in existing Tier II passenger equipment that affects a safety system on such equipment.

§ 238.603 – Safety planning requirements
(a) Prior to commencing revenue service operation of Tier II passenger equipment, each railroad shall prepare and execute a written plan for the safe operation of such equipment. The plan may be combined with any other plan required under this part. The plan shall be updated at least every 365 days. At a minimum, the plan shall describe the approaches and processes to:
   (1) Identify all requirements necessary for the safe operation of the equipment in its operating environment;
   (2) Identify all known or potential hazards to the safe operation of the equipment;
   (3) Eliminate or reduce the risk posed by each hazard identified to an acceptable level using a normal safety methodology such as MIL-STD-882C; and
   (4) Impose operational limitations, as necessary, on the operation of the equipment if the equipment cannot meet safety requirements.
(b) For the procurement of Tier II passenger equipment, and for each major upgrade or introduction of new technology in existing Tier II passenger equipment that affects a safety system on such equipment, each railroad shall prepare and execute a written safety plan. The plan may be combined with any other plan required under this part. The plan shall describe the approaches and processes to:
   (1) Identify all safety requirements governing the design of the passenger equipment and its supporting systems;
   (2) Evaluate the total system, including hardware, software, testing, and support activities, to identify known or potential safety hazards over the life cycle of the equipment;
   (3) Identify safety issues during design reviews;
   (4) Eliminate or reduce the risk posed by each hazard identified to an acceptable level using a formal safety methodology such as MIL-STD-882;
   (5) Monitor the progress in resolving safety issues, reducing hazards, and meeting safety requirements;
   (6) Develop a program of testing or analysis, or both, to demonstrate that safety requirements have been met; and
   (7) Impose operational limitations, as necessary, on the operation of the equipment if the equipment cannot meet safety requirements.
(c) Each railroad shall maintain sufficient documentation to demonstrate how the operation and design of its Tier II passenger equipment complies with safety requirements or, as appropriate, addresses safety requirements under paragraphs (a)(4) and (b)(7) of this section. Each railroad shall maintain sufficient documentation to track how safety issues are raised and resolved.
(d) Each railroad shall make available to FRA for inspection and copying upon request each safety plan required by this section and any documentation required pursuant to such plan.

Appendix A—Schedule of Civil Penalties

Appendix B—Test Methods and Performance Criteria for the Flammability and Smoke Emission Characteristics of Materials Used in Passenger Cars and Locomotive Cabs

Appendix C to Part 238—Suspension System Safety Performance Standards

Appendix D to Part 238—Requirements for External Fuel Tanks on Tier I Locomotives

Appendix E to Part 238—General Principles of Reliability-Based Maintenance Programs

49 CFR Part 238
FRA’S POLICY ON JURISDICTION OVER LIGHT RAIL PASSENGER OPERATIONS

Under the Federal railroad safety laws, FRA has jurisdiction over all railroads except “rapid transit operations in an urban area that are not connected to the general railroad system of transportation.” 49 U.S.C. 20102. Within the limits imposed by this authority, FRA exercises jurisdiction over all railroad passenger operations, regardless of the equipment they use, unless FRA has specifically stated below an exception to its exercise of jurisdiction for a particular type of operation. This policy is stated in general terms and does not change the reach of any particular regulation under its applicability section. That is, while FRA may generally assert jurisdiction over a type of operation here, a particular regulation may exclude that kind of operation from its reach. Therefore, this statement should be read in conjunction with the applicability sections of all of FRA’s regulations.

Intercity Passenger Operations

FRA exercises jurisdiction over all intercity passenger operations. Because of the nature of the service they provide, standard gage intercity operations are all considered part of the general railroad system, even if not physically connected to other portions of the system. Other intercity passenger operations that are not standard gage (such as a magnetic levitation system) are within FRA’s jurisdiction even though not part of the general system.

Commuter Operations

FRA exercises jurisdiction over all commuter operations. Congress apparently intended that FRA do so when it enacted the Federal Railroad Safety Act of 1970, and made that intention very clear in the 1982 and 1988 amendments to that act. FRA has attempted to follow that mandate consistently. A commuter system’s connection to other railroads is not relevant under the rail safety statutes. In fact, FRA considers commuter railroads to be part of the general railroad system regardless of such connections.

FRA will presume that an operation is a commuter railroad if there is a statutory determination that Congress considers a particular service to be commuter rail. For example, in the Northeast Rail Service Act of 1981, (3), Congress listed specific commuter authorities. If that 45 U.S.C. 1104 presumption does not apply, and the operation does not meet the description of a system that is presumptively urban rapid transit (see below), FRA will determine whether a system is commuter or urban rapid transit by analyzing all of the system’s pertinent facts. FRA is likely to consider an operation to be a commuter railroad if:

1. The system serves an urban area, its suburbs, and more distant outlying communities in the greater metropolitan area,
2. The system’s primary function is moving passengers back and forth between their places of employment in the city and their homes within the greater metropolitan area, and moving passengers from station to station within the immediate urban area is, at most, an incidental function, and
3. The vast bulk of the system’s trains are operated in the morning and evening peak periods with few trains at other hours.
Examples of commuter railroads include Metra and the Northern Indiana Commuter Transportation District in the Chicago area; Virginia Railway Express and MARC in the Washington area; and Metro-North, the Long Island Railroad, New Jersey Transit, and the Port Authority Trans Hudson (PATH) in the New York area.

**Other Short Haul Passenger Service**

The federal railroad safety statutes give FRA authority over “commuter or other short-haul railroad passenger service in a metropolitan or suburban area.” 49 U.S.C. 20102. This means that, in addition to commuter service, there are other short-haul types of service that Congress intended that FRA reach. For example, a passenger system designed primarily to move intercity travelers from a downtown area to an airport, or from an airport to a resort area, would be one that does not have the transportation of commuters within a metropolitan area as its primary purpose. FRA would ordinarily exercise jurisdiction over such a system as “other short-haul service” unless it meets the definition of urban rapid transit and is not connected in a significant way to the general system.

**Urban Rapid Transit Operations**

One type of short-haul passenger service requires special treatment under the safety statutes: “rapid transit operations in an urban area.” Only these operations are excluded from FRA’s jurisdiction, and only if they are “not connected to the general railroad system.” FRA will presume that an operation is an urban rapid transit operation if the system is not presumptively a commuter railroad (see discussion above) the operation is a subway or elevated operation with its own track system on which no other railroad may operate, has no highway-rail crossings at grade, operates within an urban area, and moves passengers from station to station within the urban area as one of its major functions.

Where neither the commuter railroad nor urban rapid transit presumptions applies, FRA will look at all of the facts pertinent to a particular operation to determine its proper characterization. FRA is likely to consider an operation to be urban rapid transit if:

- The operation serves an urban area (and may also serve its suburbs),
- Moving passengers from station to station within the urban boundaries is a major function of the system and there are multiple station stops within the city for that purpose (such an operation could still have the transportation of commuters as one of its major functions without being considered a commuter railroad), and
- The system provides frequent train service even outside the morning and evening peak periods.

Examples of urban rapid transit systems include the Metro in the Washington, D.C. area, CTA in Chicago, and the subway systems in New York, Boston, and Philadelphia. The type of equipment used by such a system is not determinative of its status. However, the kinds of vehicles ordinarily associated with street railways, trolleys, subways, and elevated railways are the types of vehicles most often used for urban rapid transit operations.

FRA can exercise jurisdiction over a rapid transit operation only if it is connected to the general railroad system, but need not exercise jurisdiction over every such operation that is so connected. FRA is aware of several different ways that rapid transit operations can be connected to the general system. Our policy on the exercise of jurisdiction will depend
upon the nature of the connection(s). In general, a connection that involves operation of
transit equipment as a part of, or over the lines of, the general system will trigger FRA’s
exercise of jurisdiction. Below, we review some of the more common types of
connections and their effect on the agency’s exercise of jurisdiction. This is not meant to
be an exhaustive list of connections.

**Rapid Transit Connections Sufficient to Trigger FRA’s Exercise of Jurisdiction**

Certain types of connections to the general railroad system will cause FRA to
exercise jurisdiction over the rapid transit line *to the extent it is connected*. FRA will
exercise jurisdiction over the portion of a rapid transit operation that is conducted as a
part of or over the lines of the general system. For example, rapid transit operations are
conducted on the lines of the general system where the rapid transit operation and other
railroad use the same track. FRA will exercise its jurisdiction over the operations
conducted on the general system. In situations involving joint use of the same track, it
does not matter that the rapid transit operation occupies the track only at times when the
freight, commuter, or intercity passenger railroad that shares the track is not operating.
While such time separation could provide the basis for waiver of certain of FRA’s rules
(see 49 CFR part 211), it does not mean that FRA will not exercise jurisdiction.
However, FRA will exercise jurisdiction over only the portions of the rapid transit
operation that are conducted on the general system. For example, a rapid transit line that
operates over the general system for a portion of its length but has significant portions of
street railway that are not used by conventional railroads would be subject to FRA’s rules
only with respect to the general system portion. The remaining portions would not be
subject to FRA’s rules. If the non-general system portions of the rapid transit line are
considered a “rail fixed guideway system” under 49 CFR Part 659, those rules, issued by
the Federal Transit Administration (FTA), would apply to them.

Another connection to the general system sufficient to warrant FRA’s exercise of
jurisdiction is a railroad crossing at grade where the rapid transit operation and other
railroad cross each other’s tracks. In this situation, FRA will exercise its jurisdiction
sufficiently to assure safe operations over the at-grade railroad crossing. FRA will also
exercise jurisdiction to a limited extent over a rapid transit operation that, while not
operated on the same tracks as the conventional railroad, is connected to the general
system by virtue of operating in a shared right-of-way involving joint control of trains.
For example, if a rapid transit line and freight railroad were to operate over a movable
bridge and were subject to the same authority concerning its use (*e.g.*, the same tower
operator controls trains of both operations), FRA will exercise jurisdiction in a manner
sufficient to ensure safety at this point of connection. Also, where transit operations share
highway-rail grade crossings with conventional railroads, FRA expects both systems to
observe its signal rules. For example, FRA expects both railroads to observe the
provision of its rule on grade crossing signals that requires prompt reports of warning
system malfunctions. See 49 CFR part 234. FRA believes these connections present
sufficient intermingling of the rapid transit and general system operations to pose
significant hazards to one or both operations and, in the case of highway-rail grade
crossings, to the motoring public. The safety of highway users of highway-rail grade
crossings can best be protected if they get the same signals concerning the presence of
any rail vehicles at the crossing and if they can react the same way to all rail vehicles.
Rapid Transit Connections Not Sufficient to Trigger FRA’s Exercise of Jurisdiction

Although FRA could exercise jurisdiction over a rapid transit operation based on any connection it has to the general railroad system, FRA believes there are certain connections that are too minimal to warrant the exercise of its jurisdiction. For example, a rapid transit system that has a switch for receiving shipments from the general system railroad is not one over which FRA would assert jurisdiction. This assumes that the switch is used only for that purpose. In that case, any entry onto the rapid transit line by the freight railroad would be for a very short distance and solely for the purpose of dropping off or picking up cars. In this situation, the rapid transit line is in the same situation as any shipper or consignee; without this sort of connection, it cannot receive or offer goods by rail.

Mere use of a common right-of-way or corridor in which the conventional railroad and rapid transit operation do not share any means of train control, have a rail crossing at grade, or operate over the same highway-rail grade crossings would not trigger FRA’s exercise of jurisdiction. In this context, the presence of intrusion detection devices to alert one or both carriers to incursions by the other one would not be considered a means of common train control. These common rights of way are often designed so that the two systems function completely independently of each other. FRA and FTA will coordinate with rapid transit agencies and railroads wherever there are concerns about sufficient intrusion detection and related safety measures designed to avoid a collision between rapid transit trains and conventional equipment.

Where these very minimal connections exist, FRA will not exercise jurisdiction unless and until an emergency situation arises involving such a connection, which is a very unlikely event. However, if such a system is properly considered a rail fixed guideway system, FTA’s rules (49 CFR part 659) will apply to it.

Coordination of the FRA and FTA Programs

FTA’s rules on rail fixed guideway systems (49 CFR part 659) apply to any rapid transit systems or portions thereof not subject to FRA’s rules. On rapid transit systems that are not sufficiently connected to the general railroad system to warrant FRA’s exercise of jurisdiction (as explained above), FTA’s rules will apply exclusively. On those rapid transit systems that are connected to the general system in such a way as to warrant exercise of FRA’s jurisdiction, only those portions of the rapid transit system that are connected to the general system will generally be subject to FRA’s rules.

A rapid transit railroad may apply to FRA for a waiver of any FRA regulations. See 49 CFR part 211. FRA will seek FTA’s views whenever a rapid transit operation petitions FRA for a waiver of its safety rules. In granting or denying any such waiver, FRA will make clear whether its rules do not apply to any segments of the operation so that it is clear where FTA’s rules do apply.

The authority citation for part 211 is revised to read as follows:
Appendix A

A new Appendix A is added to part 211 to read as follows.

Appendix A to Part 211—Statement of Agency Policy Concerning Waivers Related to Shared Use of Trackage or Rights-of-Way by Light Rail and Conventional Operations

1. By statute, the Federal Railroad Administration (FRA) may grant a waiver of any rule or order if the waiver “is in the public interest and consistent with railroad safety.” 49 U.S.C. 20103(d). Waiver petitions are reviewed by FRA’s Railroad Safety Board (the “Safety Board”) under the provisions of 49 CFR part 211. Waiver petitions must contain the information required by 49 CFR 211.9. The Safety Board can, in granting a waiver, impose any conditions it concludes are necessary to assure safety or are in the public interest. If the conditions under which the waiver was granted change substantially, or unanticipated safety issues arise, FRA may modify or withdraw a waiver in order to ensure safety.

2. Light rail equipment, commonly referred to as trolleys or street railways, is not designed to be used in situations where there is a reasonable likelihood of a collision with much heavier and stronger conventional rail equipment. However, existing conventional railroad tracks and rights-of-way provide attractive opportunities for expansion of light rail service.

3. Light rail operators who intend to share use of the general railroad system trackage with conventional equipment and/or whose operations constitute commuter service (see Appendix A of 49 CFR part 209 for relevant definitions) will either have to comply with FRA’s safety rules or obtain a waiver of appropriate rules. Light rail operators whose operations meet the definition of urban rapid transit and who will share a right-of-way or corridor with a conventional railroad but will not share trackage with that railroad will be subject to only those rules that pertain to any significant point of connection to the general system, such as a rail crossing at grade, a shared method of train control, or shared highway-rail grade crossings.

4. Shared use of track refers to situations where light rail transit operators conduct their operations over the lines of the general system, and includes light rail operations that are wholly separated in time (temporally separated) from conventional operations as well as light rail operations operating on the same trackage at the same time as conventional rail equipment (simultaneous joint use). Where shared use of general system trackage is contemplated, FRA believes a comprehensive waiver request covering all rules for which a waiver is sought makes the most sense. FRA suggests that a petitioner caption such a waiver petition as a Petition for Approval of Shared Use so as to distinguish it from other types of waiver petitions. The light rail operator should file the petition. All other affected railroads will be able to participate in the waiver proceedings by commenting on the petition and providing testimony at a hearing on the petition if anyone requests such a hearing. If any other railroad will be affected by the proposed operation in such a way as to necessitate a waiver of any FRA rule, that railroad may either join with the light rail operator in filing the comprehensive petition or file its own petition.

5. In situations where the light rail operator is an urban rapid transit system that will share a right-of-way or corridor with the conventional railroad but not share trackage, any waiver petition should cover only the rules that may apply at any significant points of
connection between the rapid transit line and the other railroad. A Petition for Approval of Shared Use would not be appropriate in such a case.

I. Preliminary Jurisdictional Determinations
Where a light rail operator is uncertain whether the planned operation will be subject to FRA’s safety jurisdiction and, if so, to what extent, the operator may wish to obtain FRA’s views on the jurisdictional issues before filing a waiver petition. In that case, the light rail operator (here including a transit authority that may not plan to actually operate the system itself) should write to FRA requesting such a determination. The letter should be addressed to Chief Counsel, Federal Railroad Administration, 1120 Vermont Ave., NW., Mail Stop 10, Washington, DC 20590, with a copy to the Associate Administrator for Safety at the same address at Mail Stop 25. The letter should address the criteria (found in 49 CFR part 209, appendix A) FRA uses to determine whether it has jurisdiction over a rail operation and to distinguish commuter from urban rapid transit service. A complete description of the nature of the contemplated operation is essential to an accurate determination. FRA will attempt to respond promptly to such a request. Of course, FRA’s response will be based only on the facts as presented by the light rail operator. If FRA subsequently learns that the facts are different from those presented or have changed substantially, FRA may revise its initial determination.

II. General Factors to Address in a Petition for Approval of Shared Use
1. Like all waiver petitions, a Petition for Approval of Shared Use will be reviewed by the Safety Board. A non-voting FTA liaison to the Safety Board will participate in an advisory capacity in the Safety Board’s consideration of all such petitions. This close cooperation between the two agencies will ensure that FRA benefits from the insights, particularly with regard to operational and financial issues, that FTA can provide about light rail operations, as well as from FTA’s knowledge of and contacts with state safety oversight programs. This working relationship will also ensure that FTA has a fuller appreciation of the safety issues involved in each specific shared use operation and a voice in shaping the safety requirements that will apply to such operations.

2. FRA resolves each waiver request on its own merits based on the information presented and the agency’s own investigation of the issues. In general, the greater the safety risks inherent in a proposed operation the greater will be the mitigation measures required. While FRA cannot state in advance what kinds of waivers will be granted or denied, we can provide guidance to those who may likely be requesting waivers to help ensure that their petitions address factors that FRA will no doubt consider important.

3. FRA’s procedural rules give a general description of what any waiver petition should contain, including an explanation of the nature and extent of the relief sought; a description of the persons, equipment, installations, and locations to be covered by the waiver; an evaluation of expected costs and benefits; and relevant safety data. 49 CFR 211.9. The procedural rules, of course, are not specifically tailored to situations involving light rail operations over the general system, where waiver petitions are likely to involve many of FRA’s regulatory areas. In such situations, FRA suggests that a Petition for Approval of Shared Use address the following general factors.

A. Description of operations. You should explain the frequency and speeds of all operations on the line and the nature of the different operations. You should explain the nature of any connections between the light rail and conventional operations.
If the light rail line will operate on any segments (e.g., a street railway portion) that will not be shared by a conventional railroad, describe those segments and their connection with the shared use segments. If the petitioner has not previously sought and received a determination from FRA concerning jurisdictional issues, explain, using the criteria set out in 49 CFR part 209, Appendix A, whether the light rail operation is, in the petitioner's view, a commuter operation or urban rapid transit.

You should describe precisely what the respective hours of operation will be for each type of equipment on the shared use segments. If light rail and conventional operations will occur only at different times of day, describe what means of protection will ensure that the different types of equipment are not operated simultaneously on the same track, and how protection will be provided to ensure that, where one set of operations begins and the other ends, there can be no overlap that would possibly result in a collision.

If the light rail and conventional operations will share trackage during the same time periods, the petitioners will face a steep burden of demonstrating that extraordinary safety measures will be taken to adequately reduce the likelihood of a collision between conventional and light rail equipment to the point where the safety risks associated with joint use would be acceptable. You should explain the nature of such simultaneous joint use, the system of train control, the frequency and proximity of both types of operations, the training and qualifications of all operating personnel in both types of operations, and all methods that would be used to prevent collisions. You should also include a quantitative risk assessment concerning the risk of collision between the light rail and conventional equipment under the proposed operating scenario.

B. Description of equipment.

(1) You should describe all equipment that will be used by the light rail and conventional operations. Where the light rail equipment does not meet the standards of 49 CFR part 238, you should provide specifics on the crash survivability of the light rail equipment, such as static end strength, sill height, strength of corner posts and collision posts, side strength, etc.

(2) Given the structural incompatibility of light rail and conventional equipment, FRA has grave concerns about the prospect of operating these two types of equipment simultaneously on the same track. If the light rail and conventional operations will share trackage during the same time periods, you should provide an engineering analysis of the light rail equipment’s resistance to damage in various types of collisions, including a worst case scenario involving a failure of the collision avoidance systems resulting in a collision between light rail and conventional equipment at track speeds.

C. Alternative safety measures to be employed in place of each rule for which waiver is sought. The petition should specify exactly which rules the petitioner desires to be waived. For each rule, the petition should explain exactly how a level of safety at least equal to that afforded by the FRA rule will be provided by the alternative measures the petitioner proposes.

(1) Most light rail operations that entail some shared use of the general system will also have segments that are not on the general system. FTA’s rules on rail fixed guideway systems will probably apply to those other segments. If so, the petition for waiver of FRA’s rules should explain how the system safety program plan adopted under FTA’s rules may affect safety on the portions of the system where FRA’s rules apply.

Under certain circumstances, effective implementation of such a plan may provide FRA sufficient assurance that adequate measures are in place to warrant waiver of certain FRA rules.
(2) In its petition, the light rail operator may want to certify that the subject matter addressed by the rule to be waived is addressed by the system safety plan and that the light rail operation will be monitored by the state safety oversight program. That is likely to expedite FRA’s processing of the petition. FRA will analyze information submitted by the petitioner to demonstrate that a safety matter is addressed by the light rail operator’s system safety plan. Alternately, conditional approval may be requested at an early stage in the project, and FRA would thereafter review the system safety program plan’s status to determine readiness to commence operations. Where FRA grants a waiver, the state agency will oversee the area addressed by the waiver, but FRA will actively participate in partnership with FTA and the state agency to address any safety problems.

D. Documentation of agreement with affected railroads. Conventional railroads that will share track with the light rail operation need not join as a co-petitioner in the light rail operator’s petition. However, the petition should contain documentation of the precise terms of the agreement between the light rail operator and the conventional railroad concerning any actions that the conventional railroad must take to ensure effective implementation of alternative safety measures. For example, if temporal separation is planned, FRA expects to see the conventional railroad’s written acceptance of its obligations to ensure that the separation is achieved. Moreover, if the arrangements for the light rail service will require the conventional railroad to employ any alternative safety measures rather than strictly comply with FRA’s rules, that railroad will have to seek its own waiver (or join in the light rail operator’s petition).

III. Waiver Petitions Involving No Shared Use of Track and Limited Connections Between Light Rail and Conventional Operations

Even where there is no shared use of track, light rail operators may be subject to certain FRA rules based on limited, but significant connections to the general system.

1. Rail crossings at grade. Where a light rail operation and a conventional railroad have a crossing at grade, several FRA rules may apply to the light rail operation at the point of connection. If movements at the crossing are governed by a signal system, FRA’s signal rules (49 CFR parts 233, 235, and 236) apply, as do the signal provisions of the hours of service statute, 49 U.S.C. 21104. To the extent radio communication is used to direct the movements, the radio rules (part 220) apply. The track rules (part 213) cover any portion of the crossing that may affect the movement of the conventional railroad. Of course, if the conventional railroad has responsibility for compliance with certain of the rules that apply at that point (for example, where the conventional railroad maintains the track and signals and dispatches all trains), the light rail operator will not have compliance responsibility for those rules and would not need a waiver.

2. Shared train control systems. Where a light rail operation is governed by the same train control system as a conventional railroad (e.g., at a moveable bridge that they both traverse), the light rail operator will be subject to applicable FRA rules (primarily the signal rules in parts 233, 235, and 236) if it has maintenance or operating responsibility for the system.

3. Highway-Rail Grade Crossings. Light rail operations over highway-rail grade crossings also used by conventional trains will be subject to FRA’s rules on grade crossing signal system safety (part 234) and the requirement to have auxiliary lights on locomotives (49 CFR 229.125). Even if the conventional railroad maintains the crossing,
the light rail operation will still be responsible for reporting and taking appropriate actions in response to warning system malfunctions. In any of these shared right-of-way situations involving significant connections, the light rail operator may petition for a waiver of any rules that apply to its activities.

IV. Factors to Address Related to Specific Regulations and Statutes

Operators of light rail systems are likely to apply for waivers of many FRA rules. FRA offers the following suggestions on factors petitioners may want to address concerning specific areas of regulation. (All “part” references are to title 49 CFR.) Parts 209 (Railroad Safety Enforcement Procedures), 211 (Rules of Practice), 212 (State Safety Participation), and 216 (Special Notice and Emergency Order Procedures) are largely procedural rules that are unlikely to be the subject of waivers, so those parts are not discussed further. For segments of a light rail line not involving operations over the general system, assuming the light rail operation meets the definition of “rapid transit,” FRA’s standards do not apply and the petition need not address those segments with regard to each specific rule from which waivers are sought with regard to shared use trackage.

Track, structures, and signals.
A. Track safety standards (part 213). For general system track used by both the conventional and light rail lines, the track standards apply and a waiver is very unlikely. A light rail operation that owns track over which the conventional railroad operates may wish to consider assigning responsibility for that track to the other railroad. If so, the track owner must follow the procedure set forth in 49 CFR 213.5©. Where such an assignment occurs, the owner and assignee are responsible for compliance.
B. Signal systems reporting requirements (part 233). This part contains reporting requirements with respect to methods of train operation, block signal systems, interlockings, traffic control systems, automatic train stop, train control, and cab signal systems, or other similar appliances, methods, and systems. If a signal system failure occurs on general system track which is used by both conventional and light rail lines, and triggers the reporting requirements of this part, the light rail operator must file, or cooperate fully in the filing of, a signal system report. The petition should explain whether the light rail operator or conventional railroad is responsible for maintaining the signal system. Assuming that the light rail operator (or a contractor hired by this operator) has responsibility for maintaining the signal system, that entity is the logical choice to file each signal failure report, and a waiver is very unlikely. Moreover, since a signal failure first observed by a light rail operator can later have catastrophic consequences for a conventional railroad using the same track, a waiver would jeopardize rail safety on that general system trackage. Even if the conventional railroad is responsible for maintaining the signal systems, the light rail operator must still assist the railroad in reporting all signal failures by notifying the conventional railroad of such failures.
C. Grade crossing signal system safety (part 234). This part contains minimum standards for the maintenance, inspection, and testing of highway-rail grade crossing warning systems, and also prescribes standards for the reporting of system failures and minimum actions that railroads must take when such warning systems malfunction. If a grade crossing accident or warning activation failure occurs during light rail operations on general system track that is used by both conventional and light rail lines, the light rail
operator must submit, or cooperate with the other railroad to ensure the submission of, a report to FRA within the required time frame (24 hours for an accident report, or 15 days for a grade crossing signal system activation failure report). The petition should explain whether the light rail operator or conventional railroad is responsible for maintaining the grade crossing devices. Assuming that the light rail operator (or a contractor hired by this operator) has responsibility for maintaining the grade crossing devices, that entity is the logical choice to file each grade crossing signal failure report, and a waiver is very unlikely. Moreover, since a grade crossing warning device failure first observed by a light rail operator can later have catastrophic consequences for a conventional railroad using the same track, a waiver would jeopardize rail safety on that general system trackage. However, if the conventional railroad is responsible for maintaining the grade crossing devices, the light rail operator will still have to assist the railroad in reporting all grade crossing signal failures. Moreover, regardless of which railroad is responsible for maintenance of the grade crossing signals, any railroad (including a light rail operation) operating over a crossing that has experienced an activation failure, partial activation, or false activation must take the steps required by this rule to ensure safety at those locations. While the maintaining railroad will retain all of its responsibilities in such situations (such as contacting train crews and notifying law enforcement agencies), the operating railroad must observe requirements concerning flagging, train speed, and use of the locomotive’s audible warning device.

D. Approval of signal system modifications (part 235). This part contains instructions governing applications for approval of a discontinuance or material modification of a signal system or relief from the regulatory requirements of part 236. In the case of a signal system located on general system track which is used by both conventional and light rail lines, a light rail operation is subject to this part only if it (or a contractor hired by the operator) owns or has responsibility for maintaining the signal system. If the conventional railroad does the maintenance, then that railroad would file any application submitted under this part; the light rail operation would have the right to protest the application under § 235.20. The petition should discuss whether the light rail operator or conventional railroad is responsible for maintaining the signal system.

E. Standards for signal and train control systems (part 236). This part contains rules, standards, and instructions governing the installation, inspection, maintenance, and repair of signal and train control systems, devices, and appliances. In the case of a signal system located on general system track which is used by both conventional and light rail lines, a light rail operation is subject to this part only if it (or a contractor hired by the operation) owns or has responsibility for installing, inspecting, maintaining, and repairing the signal system. If the light rail operation has these responsibilities, a waiver would be unlikely because a signal failure would jeopardize the safety of both the light rail operation and the conventional railroad. If the conventional railroad assumes all of the responsibilities under this part, the light rail operation would not need a waiver, but it would have to abide by all operational limitations imposed this part and by the conventional railroad. The petition should discuss whether the light rail operator or conventional railroad has responsibility for installing, inspecting, maintaining, and repairing the signal system.

1. Motive power and equipment.

A. Railroad noise emission compliance regulations (part 210). FRA issued this rule under the Noise Control Act of 1972, 42 U.S.C. 4916, rather than under its railroad safety
authority. Because that statute included a definition of “railroad” borrowed from one of the older railroad safety laws, this part has an exception for “street, suburban, or interurban electric railways unless operated as a part of the general railroad system of transportation.” 49 CFR 210.3(b)(2). The petition should address whether this exception may apply to the light rail operation. Note that this exception is broader than the sole exception to the railroad safety statutes (i.e., urban rapid transit not connected to the general system). The greater the integration of the light rail and conventional operations, the less likely this exception would apply.

If the light rail equipment would normally meet the standards in this rule, there would be no reason to seek a waiver of it. If it appears that the light rail system would neither meet the standards nor fit within the exception, the petition should address noise mitigation measures used on the system, especially as part of a system safety program. Note, however, that FRA lacks the authority to waive certain Environmental Protection Agency standards (40 CFR part 201) that underlie this rule. See 49 CFR 210.11(a).

B. Railroad freight car safety standards (part 215).

A light rail operator is likely to move freight cars only in connection with maintenance-of-way work. As long as such cars are properly stenciled in accordance with section 215.305, this part does not otherwise apply, and a waiver would seem unnecessary.

C. Rear end marking devices (part 221).

This part requires that each train occupying or operating on main line track be equipped with, display, and continuously illuminate or flash a marking device on the trailing end of the rear car during periods of darkness or other reduced visibility. The device, which must be approved by FRA, must have specific intensity, beam arc width, color, and flash rate characteristics. A light rail operation seeking a waiver of this part will need to explain how other marking devices with which it equips its vehicles, or other means such as train control, will provide the same assurances as this part of a reduced likelihood of collisions attributable to the failure of an approaching train to see the rear end of a leading train in time to stop short of it during periods of reduced visibility. The petition should describe the light rail vehicle’s existing marking devices (e.g., headlights, brakelights, taillights, turn signal lights), and indicate whether the vehicle bears reflectors. If the light rail system will operate in both a conventional railroad environment and in streets mixed with motor vehicles, the petition should discuss whether adapting the design of the vehicle’s lighting characteristics to conform to FRA’s regulations would adversely affect the safety of its operations in the street environment. A light rail system that has a system safety program developed under FTA’s rules may choose to discuss how that program addresses the need for equivalent levels of safety when its vehicles operate on conventional railroad corridors.

D. Safety glazing standards (part 223).

This part provides that passenger car windows be equipped with FRA-certified glazing materials in order to reduce the likelihood of injury to railroad employees and passengers from the breakage and shattering of windows and avoid ejection of passengers from the vehicle in a collision. This part, in addition to requiring the existence of at least four emergency windows, also requires window markings and operating instructions for each emergency window, as well as for each window intended for emergency access, so as to provide the necessary information for evacuation of a passenger car. FRA will not permit operations to occur on the general system in the absence of effective alternatives to the requirements of this part that provide an equivalent level of safety. The petition should explain what equivalent safeguards are in place to provide the same assurance as part 223 that passengers and crewmembers are safe from the effects of objects striking a light rail vehicle’s windows.
The petition should also discuss the design characteristics of its equipment when it explains how the safety of its employees and passengers will be assured during an evacuation in the absence of windows meeting the specific requirements of this part. A light rail system that has a system safety program plan developed under FTA’s rule may be able to demonstrate that the plan satisfies the safety goals of this part.

E. Locomotive safety standards (part 229).

(1) This part contains minimum safety standards for all locomotives, except those propelled by steam power. FRA recognizes that due to the unique characteristics of light rail equipment, some of these provisions may be irrelevant to light rail equipment, and that others may not fit properly in the context of light rail operations. A waiver petition should explain precisely how the light rail system’s practices will provide for the safe condition and operation of its locomotive equipment.

(2) FRA is not likely to waive completely the provision (section 229.125) of this rule concerning auxiliary lights designed to warn highway motorists of an approaching train. In order to reduce the risk of grade crossing accidents, it is important that all locomotives used by both conventional railroads and light rail systems present the same distinctive profile to motor vehicle operators approaching grade crossings on the general railroad system. If uniformity is sacrificed by permitting light rail systems to operate locomotives through the same grade crossings traversed by conventional trains with light arrangements placed in different locations on the equipment, safety could be compromised. Accordingly, the vehicle design should maintain the triangular pattern required of other locomotives and cab cars to the extent practicable.

(3) FRA is aware that light rail headlights are likely to produce less than 200,000 candela. While some light rail operators may choose to satisfy the requirements of section 229.125 by including lights on their equipment of different candlepower controlled by dimmer switches, the headlights on the majority of light rail vehicles will likely not meet FRA's minimum requirement. However, based on the nature of the operations of light rail transit, FRA recognizes that waivers of the minimum candela requirement for transit vehicle headlights seems appropriate.


(1) Since certain safety appliance requirements (e.g., automatic couplers) are statutory, they can only be "waived" by FRA under the exemption conditions set forth in 49 U.S.C. 20306. Because exemptions requested under this statutory provision do not involve a waiver of a safety rule, regulation, or standard (see 49 CFR 211.41), FRA is not required to follow the rules of practice for waivers contained in part 211. However, whenever appropriate, FRA will combine its consideration of any request for an exemption under § 20306 with its review under part 211 of a light rail operation's petition for waivers of FRA's regulations.

(2) FRA may grant exemptions from the statutory safety appliance requirements in 49 U.S.C. 20301-20305 only if application of such requirements would "preclude the development or implementation of more efficient railroad transportation equipment or other transportation innovations." 49 U.S.C. 20306. The exemption for technological improvements was originally enacted to further the implementation of a specific type of freight car, but the legislative history shows that Congress intended the exemption to be used elsewhere so that "other types of railroad equipment might similarly benefit." S. Rep. 96-614 at 8 (1980), reprinted in 1980 U.S.C.C.A.N. 1156,1164.

(3) FRA recognizes the potential public benefits of allowing light rail systems to take advantage of underutilized urban freight rail corridors to provide service that, in the
absence of the existing right-of-way, would be prohibitively expensive. Any petitioner requesting an exemption for technological improvements should carefully explain how being forced to comply with the existing statutory safety appliance requirements would conflict with the exemption exceptions set forth at 49 U.S.C. 20306. The petition should also show that granting the exemption is in the public interest and is consistent with assuring the safety of the light rail operator's employees and passengers.

G. Safety appliance standards (part 231).

(1) The regulations in this part specify the requisite location, number, dimensions, and manner of application of a variety of railroad car safety appliances (e.g., handbrakes, ladders, handholds, steps), and directly implement a number of the statutory requirements found in 49 U.S.C. 20301-20305. These very detailed regulations are intended to ensure that sufficient safety appliances are available and able to function safely and securely as intended.

(2) FRA recognizes that due to the unique characteristics of light rail equipment, some of these provisions may be irrelevant to light rail operation, and that others may not fit properly in the context of light rail operations (e.g., crewmembers typically do not perform yard duties from positions outside and adjacent to the light rail vehicle or near the vehicle's doors). However, to the extent that the light rail operation encompasses the safety risks addressed by the regulatory provisions of this part, a waiver petition should explain precisely how the light rail system's practices will provide for the safe operation of its passenger equipment. The petition should focus on the design specifications of the equipment, and explain how the light rail system's operating practices, and its intended use of the equipment, will satisfy the safety purpose of the regulations while providing at least an equivalent level of safety.

H. Passenger equipment safety standards (part 238). This part prescribes minimum Federal safety standards for railroad passenger equipment. Since a collision on the general railroad system between light rail equipment and conventional rail equipment could prove catastrophic, because of the significantly greater mass and structural strength of the conventional equipment, a waiver petition should describe the light rail operation's system safety program that is in place to minimize the risk of such a collision. The petition should discuss the light rail operation's operating rules and procedures, train control technology, and signal system. If the light rail operator and conventional railroad will operate simultaneously on the same track, the petition should include a quantitative risk assessment that incorporates design information and provide an engineering analysis of the light rail equipment and its likely performance in derailment and collision scenarios. The petitioner should also demonstrate that risk mitigation measures to avoid the possibility of collisions, or to limit the speed at which a collision might occur, will be employed in connection with the use of the equipment on a specified shared-use rail line. This part also contains requirements concerning power brakes on passenger trains, and a petitioner seeking a waiver in this area should refer to these requirements, not those found in 49 CFR part 232.
it may wish to seek a waiver permitting it to observe OSHA standards throughout its system.

(2) There are no comparable OSHA standards protecting roadway workers. The petition should explain which operator is responsible for track and signal work on the shared segments. If the light rail operator does this work, the petition should explain how the light rail operator protects these workers. However, to the extent that protection varies significantly from FRA's rules, a waiver permitting use of the light rail system's standards could be very confusing to train crews of the conventional railroad who follow FRA's rules elsewhere. A waiver of this rule is unlikely. A petition should address how such confusion would be avoided and safety of roadway workers would be ensured.

B. Railroad operating rules (part 217). This part requires filing of a railroad's operating rules and that employees be instructed and tested on compliance with them. A light rail operation would not likely have difficulty complying with this part. However, if a waiver is desired, the light rail system should explain how other safeguards it has in place provide the same assurance that operating employees are trained and periodically tested on the rules that govern train operation. A light rail system that has a system safety program plan developed under FTA's rules may be in a good position to give such an assurance.

C. Railroad operating practices (part 218). This part requires railroads to follow certain practices in various aspects of their operations (protection of employees working on equipment, protection of trains and locomotives from collisions in certain situations, prohibition against tampering with safety devices, protection of occupied camp cars). Some of these provisions (e.g., camp cars) may be irrelevant to light rail operations. Others may not fit well in the context of light rail operations. To the extent the light rail operation presents the risks addressed by the various provisions of this part, a waiver provision should explain precisely how the light rail system's practices will address those risks. FRA is not likely to waive the prohibition against tampering with safety devices, which would seem to present no particular burden to light rail operations. Moreover, blue signal regulations, which protect employees working on or near equipment, are not likely to be waived to the extent that such work is performed on track shared by a light rail operation and a conventional railroad, where safety may best be served by uniformity.

D. Control of alcohol and drug use (part 219). FRA will not permit operations to occur on the general system in the absence of effective rules governing alcohol and drug use by operating employees. FTA's own rules may provide a suitable alternative for a light rail system that is otherwise governed by those rules. However, to the extent that light rail and conventional operations occur simultaneously on the same track, FRA is not likely to apply different rules to the two operations, particularly with respect to post-accident testing, for which FRA requirements are more extensive (e.g., section 219.11(f) addresses the removal, under certain circumstances, of body fluid and/or tissue samples taken from the remains of any railroad employee who performs service for a railroad). (FRA recognizes that in the event of a fatal train accident involving a transit vehicle, whether involving temporal separation or simultaneous use of the same track, the National Transportation Safety Board will likely investigate and obtain its own toxicology test results.)

E. Railroad communications (part 220). A light rail operation is likely to have an effective system of radio communication that may provide a suitable alternative to FRA's rules. However, the greater the need for radio communication between light rail personnel (e.g., train crews or dispatchers) and personnel of the conventional railroad
(e.g., train crews, roadway workers), the greater will be the need for standardized communication rules and, accordingly, the less likely will be a waiver.

F. Railroad accident/incident reporting (part 225).

(1) FRA's accident/incident information is very important in the agency's decisionmaking on regulatory issues and strategic planning. A waiver petition should indicate precisely what types of accidents and incidents it would report, and to whom, under any alternative it proposes. FRA is not likely to waive its reporting requirements concerning train accidents or highway-rail grade crossing collisions that occur on the general railroad system. Reporting of accidents under FTA's rules is quite different and would not provide an effective substitute. However, with regard to employee injuries, the light rail operation may, absent FRA's rules, otherwise be subject to reporting requirements of FTA and OSHA and may have an interest in uniform reporting of those injuries wherever they occur on the system. Therefore, it is more likely that FRA would grant a waiver with regard to reporting of employee injuries.

(2) Any waiver FRA may grant in the accident/incident reporting area would have no effect on FRA's authority to investigate such incidents or on the duties of light rail operators and any other affected railroads to cooperate with those investigations. See sections 225.31 and 225.35 and 49 U.S.C. 20107 and 20902. Light rail operators should anticipate that FRA will investigate any serious accident or injury that occurs on the shared use portion of their lines, even if it occurs during hours when only the light rail trains are operating. Moreover, there may be instances when FRA will work jointly with FTA and the state agency to investigate the cause of a transit accident that occurs off the general system under circumstances that raise concerns about the safety of operations on the shared use portions. For example, if a transit operator using the same light rail equipment on the shared and non-shared-use portions of its operation has a serious accident on the non-shared-use portion, FRA may want to determine whether the cause of the accident pointed to a systemic problem with the equipment that might impact the transit system's operations on the general system. Similarly, where human error might be a factor, FRA may want to determine whether the employee potentially at fault also has safety responsibilities on the general system and, if so, take appropriate action to ensure that corrective action is taken. FRA believes its statutory investigatory authority extends as far as necessary to address any condition that might reasonably be expected to create a hazard to railroad operations within its jurisdiction.


(1) The hours of service laws apply to all railroads subject to FRA's jurisdiction, and govern the maximum work hours and minimum off-duty periods of employees engaged in one or more of the three categories of covered service described in 49 U.S.C. 21101. If an individual performs more than one kind of covered service during a tour of duty, then the most restrictive of the applicable limitations control. Under current law, a light rail operation could request a waiver of the substantive provisions of the hours of service laws only under the "pilot project" provision described in 49 U.S.C. 21108, provided that the request is based upon a joint petition submitted by the railroad and its affected labor organizations. Because waivers requested under this statutory provision do not involve a waiver of a safety rule, regulation, or standard (see 49 CFR 211.41), FRA is not required to follow the rules of practice for waivers contained in part 211. However, whenever appropriate, FRA will combine its consideration of any request for a waiver under § 21108 with its review under part 211 of a light rail operation's petition for waivers of FRA's regulations.
(2) If such a statutory waiver is desired, the light rail system will need to assure FRA that the waiver of compliance is in the public interest and consistent with railroad safety. The waiver petition should include a discussion of what fatigue management strategies will be in place for each category of covered employees in order to minimize the effects of fatigue on their job performance. However, FRA is unlikely to grant a statutory waiver covering employees of a light rail operation who dispatch the trains of a conventional railroad or maintain a signal system affecting shared use trackage.

H. **Hours of service recordkeeping (part 228).** This part prescribes reporting and recordkeeping requirements with respect to the hours of service of employees who perform the job functions set forth in 49 U.S.C. 21101. As a general rule, FRA anticipates that any waivers granted under this part will only exempt the same groups of employees for whom a light rail system has obtained a waiver of the substantive provisions of the hours of service laws under 49 U.S.C. 21108. Since it is important that FRA be able to verify that a light rail operation is complying with the on- and off-duty restrictions of the hour of service laws for all employees not covered by a waiver of the laws' substantive provisions, it is unlikely that any waiver granted of the reporting and recordkeeping requirements would exclude those employees. However, in a system with fixed work schedules that do not approach 12 hours on duty in the aggregate, it may be possible to utilize existing payroll records to verify compliance.

I. **Passenger train emergency preparedness (part 239).** This part prescribes minimum Federal safety standards for the preparation, adoption, and implementation of emergency preparedness plans by railroads connected with the operation of passenger trains. FRA's expectation is that by requiring affected railroads to provide sufficient emergency egress capability and information to passengers, along with mandating that these railroads coordinate with local emergency response officials, the risk of death or injury from accidents and incidents will be lessened. A waiver petition should state whether the light rail system has an emergency preparedness plan in place under a state system safety program developed under FTA's rules for the light rail operator's separate street railway segments. Under a system safety program, a light rail operation is likely to have an effective plan for dealing with emergency situations that may provide an equivalent alternative to FRA's rules. To the extent that the light rail operation's plan relates to the various provisions of this part, a waiver petition should explain precisely how each of the requirements of this part is being addressed. The petition should especially focus on the issues of communication, employee training, passenger information, liaison relationships with emergency responders, and marking of emergency exits.

J. **Qualification and certification of locomotive engineers (part 240).** This part contains minimum Federal safety requirements for the eligibility, training, testing, certification, and monitoring of locomotive engineers. Those who operate light rail trains may have significant effects on the safety of light rail passengers, motorists at grade crossings, and, to the extent trackage is shared with conventional railroads, the employees and passengers of those railroads. The petition should describe whether a light rail system has a system safety plan developed under FTA's rules that is likely to have an effective means of assuring that the operators, or "engineers," of its equipment receive the necessary training and have proper skills to operate a light rail vehicle in shared use on the general railroad system. The petition should explain what safeguards are in place to ensure that light rail engineers receive at least an equivalent level of training, testing, and monitoring on the rules governing train operations to that received by locomotive engineers.
engineers employed by conventional railroads and certified under part 240. Any light rail system unable to meet this burden would have to fully comply with the requirements of part 240. Moreover, where a transit system intends to operate simultaneously on the same track with conventional equipment, FRA will not be inclined to waive the part 240 requirements. In that situation, FRA's paramount concern would be uniformity of training and qualifications of all those operating trains on the general system, regardless of the type of equipment.

V. Waivers That May be Appropriate for Time-Separated Light Rail Operations

1. The foregoing discussion of factors to address in a petition for approval of shared use concerns all such petitions and, accordingly, is quite general. FRA is willing to provide more specific guidance on where waivers may be likely with regard to light rail operations that are time-separated from conventional operations. FRA's greatest concern with regard to shared use of the general system is a collision between light rail and conventional trains on the same track. Because the results could well be catastrophic, FRA places great emphasis on avoiding such collisions. The surest way to guarantee that such collisions will not occur is to strictly segregate light rail and conventional operations by time of day so that the two types of equipment never share the same track at the same time. This is not to say that FRA will not entertain waiver petitions that rely on other methods of collision avoidance such as sophisticated train control systems. However, petitioners who do not intend to separate light rail from conventional operations by time of day will face a steep burden of demonstrating an acceptable level of safety. FRA does not insist that all risk of collision be eliminated. However, given the enormous severity of the likely consequences of a collision, the demonstrated risk of such an event must be extremely remote.

2. There are various ways of providing such strict separation by time. For example, freight operations could be limited to the hours of midnight to 5 a.m. when light rail operations are prohibited. Or, there might be both a nighttime and a mid-day window for freight operation. The important thing is that the arrangement not permit simultaneous operation on the same track by clearly defining specific segments of the day when only one type of operation may occur. Mere spacing of train movements by a train control system does not constitute this temporal separation.

3. FRA is very likely to grant waivers of many of its rules where complete temporal separation between light rail and conventional operations is demonstrated in the waiver request. The chart below lists each of FRA's railroad safety rules and provides FRA's view on whether it is likely to grant a waiver in a particular area where temporal separation is assured. Where the "Likely Treatment" column says "comply" a waiver is not likely, and where it says "waive" a waiver is likely. Of course, FRA will consider each petition on its own merits and one should not presume, based on the chart, that FRA will grant or deny any particular request in a petition. This chart is offered as general guidance as part of a statement of policy, and as such does not alter any safety rules or obligate FRA to follow it in every case. This chart assumes that the operations of the local rail transit agency on the general railroad system are completely separated in time from conventional railroad operations, and that the light rail operation poses no atypical safety hazards. FRA's procedural rules on matters such as enforcement (49 CFR parts 209 and 216), and its statutory authority to investigate accidents and injuries and take
emergency action to address an imminent hazard of death or injury, would apply to these operations in all cases.

4. Where waivers are granted, a light rail operator would be expected to operate under a system safety plan developed in accordance with the FTA state safety oversight program. The state safety oversight agency would be responsible for the safety oversight of the light rail operation, even on the general system, with regard to aspects of that operation for which a waiver is granted. (The "Comments" column of the chart shows "State Safety Oversight" where waivers conditioned on such state oversight are likely.) FRA will coordinate with FTA and the state agency to address any serious safety problems. If the conditions under which the waiver was granted change substantially, or unanticipated safety issues arise, FRA may modify or withdraw a waiver in order to ensure safety. On certain subjects where waivers are not likely, the "Comments" column of the chart makes special note of some important regulatory requirements that the light rail system will have to observe even if it is not primarily responsible for compliance with that particular rule.
# Possible Waivers for Light Rail Operations on the General Railroad System Based on Separation in Time from Conventional Operations

<table>
<thead>
<tr>
<th>Title 49 CFFI part</th>
<th>Subject of rule</th>
<th>Likely treatment</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Track, Structures, and Signals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>213</td>
<td>Track safety standards</td>
<td>Comply (assuming light rail operator owns track or has been assigned responsibility for it).</td>
<td>If the conventional RR owns the track, light rail will have to observe speed limits for class of track.</td>
</tr>
<tr>
<td>233, 235, 236</td>
<td>Signal and train control</td>
<td>Comply (assuming light rail operator or its contractor has responsibility for signal maintenance).</td>
<td>If conventional RR maintains signals, light rail will have to abide by operational limitations and report signal failures.</td>
</tr>
<tr>
<td>234</td>
<td>Grade crossing signals</td>
<td>Comply (assuming light rail operator or its contractor has responsibility for crossing devices).</td>
<td>If conventional RR maintains devices, light rail will have to comply with section concerning crossing accidents, activation failures and false activations.</td>
</tr>
<tr>
<td>213, Appendix C</td>
<td>Bridge safety policy</td>
<td>Not a rule. Compliance voluntary.</td>
<td></td>
</tr>
<tr>
<td><strong>Motive Power and Equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>210</td>
<td>Noise emission</td>
<td>Waive</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>215</td>
<td>Freight car safety standards</td>
<td>Waive</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>221</td>
<td>Rear end marking devices</td>
<td>Waive</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>223</td>
<td>Safety glazing standards</td>
<td>Waive</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>229</td>
<td>Locomotive safety standards</td>
<td>Waive, except for arrangement of auxiliary lights, which is important for grade crossing safety.</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>231*</td>
<td>Safety appliance standards</td>
<td>Waive</td>
<td>State safety oversight, see note below on statutory requirements.</td>
</tr>
<tr>
<td>238</td>
<td>Passenger equipment standards</td>
<td>Waive</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td><strong>Operating Practises</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>214</td>
<td>Bridge worker</td>
<td>Waive</td>
<td>OSHA standards.</td>
</tr>
<tr>
<td>214</td>
<td>Roadway worker safety</td>
<td>Comply</td>
<td></td>
</tr>
<tr>
<td>217</td>
<td>Operating rules</td>
<td>Waive</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>218</td>
<td>Operating practices</td>
<td>Waive, except for prohibition on tampering with safety devices related to signal system, and blue signal rules on shared track.</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>219</td>
<td>Alcohol and drug</td>
<td>Waive if FTA rule otherwise applies.</td>
<td>FTA rule may apply</td>
</tr>
<tr>
<td>220</td>
<td>Radio communications</td>
<td>Waive, except to extent communications with freight trains and roadway workers are necessary.</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>225</td>
<td>Accident reporting and investigation</td>
<td>Comply with regard to train accidents and crossing accidents; waive as to injuries; FRA accident investigation authority not subject to waiver.</td>
<td>Employee injuries would be reported under FTA or OSHA rules.</td>
</tr>
<tr>
<td>226**</td>
<td>Hours of service recordkeeping</td>
<td>Waive (in concert with waiver of statute); waiver not likely for personnel who dispatch conventional RR or maintain signal system on shared use track.</td>
<td>See note below on possible waiver of statutory requirements.</td>
</tr>
<tr>
<td>239</td>
<td>Passenger train emergency</td>
<td>Waive</td>
<td>State safety oversight.</td>
</tr>
<tr>
<td>Preparedness</td>
<td>240</td>
<td>Engineer certification</td>
<td>Waive</td>
</tr>
</tbody>
</table>
*Safety Appliance Statute.* Certain safety appliance requirements (e.g., automatic couplers) are statutory and can only be waived under the conditions set forth in 49 U.S.C. 20306, which permits exemptions if application of the requirements would "preclude the development or implementation of more efficient railroad transportation equipment or other transportation innovations." If consistent with employee safety, FRA could probably rely on this provision to address most light rail equipment that could not meet the standards.

* *Hours of Service Statute.* Currently, 49 U.S.C. 21108 permits FRA to waive substantive provisions of the hours of service laws based upon a joint petition by the railroad and affected labor organizations, after notice and an opportunity for a hearing. This is a "pilot project" provision, so waivers are limited to two years but may be extended for additional two-year periods after notice and an opportunity for comment.
USE OF REMOTE CONTROL LOCOMOTIVES

Safety Advisory 2001-01

Recommendation: Operation of Remote Control Locomotives
The following design criteria and operating procedures are recommendations only. Compliance is voluntary. However, railroads are strongly encouraged to regard these suggested criterion as a minimum from which to tailor their own RCL operations. It should be noted that all of the design features recommended are available with the current generation of remote control technology. In certain circumstances, due to the design of their equipment, or differences in operating practices, a railroad may not be able to obtain complete consistency with these recommendations. In those situations railroads are encouraged to develop alternative designs or practices which offer at least equivalent or greater levels of safety. FRA emphasizes that although compliance with this Safety Advisory is voluntary, nothing in this Safety Advisory is meant to relieve a railroad from compliance with all existing railroad safety regulations. Therefore, when procedures required by regulation are cited in this Safety Advisory, compliance is mandatory.

(a) Safety Design and Operational Requirements
1. Each RCT should, at a minimum, have the following features:
   a. directional control;
   b. graduated throttle or speed control;
   c. graduated locomotive independent brake application and release;
   d. train brake application and release control;
   e. audible warning device control (horn);
   f. audible bell control, if equipped;
   g. sand control (unless automatic);
   h. headlight control;
   i. emergency air brake application switch;
   j. generator field switch or equivalent to eliminate tractive effort to the locomotive; and
   k. audio or visual indication of wheel slip/slide.
2. Although an RCT can have the capability to control, at different times, different locomotives equipped with remote-control receivers, it should be designed to be capable of controlling only one RCR equipped locomotive at a time. (A locomotive may consist of one or more engines operated from a single control).
3. An RCT having the capability to control more than one RCL should have a means to lock in one RCR "assignment address" to prevent simultaneous control over more than one locomotive.
4. Each locomotive equipped with an RCR should respond only to the RCTs assigned to that receiver.
5. The RCT should be designed to require at least two separate actions by the RCO before RCL movement can begin (in order to prevent accidental movement).
6. When an RCT's signal to the RCL is interrupted for a set period, not to exceed five seconds, the remote-control system should cause:
   a. full service application of the locomotive and train brakes; and
   b. elimination of locomotive tractive effort.
7. If an RCT is equipped with an "on" and "off" switch, the switch, when moved from "on" to "off" position, should result in:
   a. application of the locomotive and train brakes; and
   b. elimination of locomotive tractive effort.

8. Each RCL should have a distinct and unambiguous audible or visual warning device that indicates to nearby personnel that the locomotive is under active remote control and subject to movement.

9. Each RCT should be equipped with an operator alertness device requiring manual resetting or its equivalent. It should incorporate a timing sequence not to exceed 60 seconds. Failure to reset the switch within the timing sequence should result in:
   a. application of the locomotive and train brakes; and
   b. elimination of locomotive tractive effort.

10. Each RCT should have a tilt feature that, when tilted to a predetermined angle, should result in:
    a. an emergency application of the locomotive and train brakes; and
    b. elimination of locomotive tractive effort.

Note: If RCL operations are being conducted in an isolated area, the railroad should establish timely emergency response procedures in the event the RCO is incapacitated. One method that would serve to meet this recommendation would be to equip the RCT with capability of transmitting an emergency signal. The signal should also be capable of identifying the RCO's location.

11. If the RCT is equipped with a "tilt bypass" system enabling the tilt protection feature to be temporarily disabled, the bypass feature should deactivate after 15 seconds, unless reactivated by the RCO.

12. The RCL should be equipped with a device that causes an application of the locomotive and train brakes and elimination of locomotive tractive effort whenever the RCL's main reservoir air pressure falls below 90 psi or when a locomotive protection alarm is activated while the locomotive is in remote operation. The device should need to be manually reset on board the RCL.

13. When the air valves and the electrical selector switch on the RCR are moved from manual to remote or from remote to manual modes, an emergency application of the locomotive and train brakes should be initiated to prevent unauthorized use of the system.

14. Railroads which acquire and utilize RCL equipment should comply with current human safety exposure standards for radio frequency radiation in their workplace. FRA further recommends that manufacturers should certify their equipment for compliance with current EMR exposure safety standards.

15. Consideration should be given to the design of the RCT to provide for a human-machine interface (HMI) that incorporates basic human factors principles for the design and operation of displays, controls, supporting software functions, and other components. FRA recommends that railroads work closely with RCOs when addressing RCT design and comfort issues. The overriding goal of the design should be to minimize the potential for design-induced error by ensuring that the RCT is suitable for operators, including female operators, and their tasks and environment. RCT systems that have been designed with human-centered design principles in mind-system products that keep human operators as the central, active component of the system-are more likely to result in improved safety. This includes the ergonomic design of the RCT. See FRA's 1998 report entitled "Human Factors Guidelines for Locomotive Cabs" (FRA/ORD-98/03 or DOT-
VNTSC-FRA-98-8). Special consideration should be given to the effect of the RCT on the musculoskeletal system of the RCOs as well as on RCT harness comfort to avoid distraction from safety-related duties. Additional consideration should also be given to the "breakaway" safety feature of the RCT harness. The harness should be designed to easily break free of the RCO in the event the harness becomes entangled on equipment.

(b) Training
Each person operating an RCL must be certified and qualified in accordance with 49 CFR Part 240 if conventional operation of a locomotive under the same circumstances would require certification under that regulation. Training must be provided to all RCOs subject to the requirements of 49 CFR Part 240. Additionally, training should be afforded those RCOs not subject to the requirements of Part 240 and those locomotive engineers who have little or no on-ground experience in switching operations if they are expected to conduct RCL operations. All affected railroad employees should be trained on RCL operating rules and procedures.

Under Part 240, railroad engineer certification programs must include procedures to keep certified engineers current on methods of safe train handling, operating rules, condition of equipment, and personal safety and to provide initial training for new engineers on those subjects. § 240.123. The programs must also include skill testing in the most demanding type of service the person will perform. § 240.127. Appendix B of Part 240 requires that railroad engineer certification programs address how the railroad responds to changes such as the "introduction of new technology" and "significant changes in operations." In FRA's view, it is likely that the introduction of remote controlled locomotives on railroads would typically necessitate a material change to each railroad's engineer certification program. Material modifications must be submitted to FRA for its review under 49 CFR 240.103(e).

(c) Operating Practices
1. The railroad should establish written standard operating procedures tailored to its RCL operations. At a minimum these procedures should include:
   a. Upon going off duty, each RCO should place the RCL in manual operation and properly secure it, unless control of the RCL is directly given to a relieving RCO.
   b. When operating an RCL, the RCO should not:
      i. ride on a freight car under any circumstances;
      ii. mount or dismount moving equipment;
      iii. operate any other type of machinery; or
      iv. stand or walk within the gage of the track or foul the track on which the movement is occurring while physically located in front of the movement.
   c. RCOs should ensure that the track is clear and properly aligned ahead of the remotely controlled movement while it is underway. Therefore, RCL operations should be operated at restricted speed not to exceed 20 mph, i.e., at a speed that will enable stopping the movement within half the range of vision assuring that all movements are protected.
   d. The RCO should operate only one RCL at a time.
   e. Prior to performing any function as prescribed in 49 CFR 218.22(c)(5), the RCO should apply three point protection, i.e., fully apply the
locomotive and train brakes, center the reverser, and place the generator field switch to the off position (eliminate locomotive tractive effort capability).

f. Passenger trains should not be operated by use of a remote-control device.

2. The railroad must include RCL operating rules and procedures in its program required under 49 CFR part 217.

3. The railroad should establish formal communication procedures to enable the appropriate railroad officials to receive and respond to information pertaining to RCL system failures or safety problems.

4. The FRA recommends that the railroad keep a record of the total number of labor hours and the total number of employees by location for both RCL and manual switching operations to ensure that accidents and incidents are accurately measured, and that valid comparisons between the two types of operations can then be made.

5. The FRA recommends that the railroad develop and implement a program specifically designed for RCOs that addresses the risks associated with switching operations and train movements on adjacent tracks. This program should incorporate the findings and recommendations of the Switching Operations Fatality Analysis Working Group.

(d) Security

1. The railroad should have instructions for the proper storing and handling of RCTs when not in use or in the operator's possession.

2. The operation control handles located in the RCL cab should be removed or pinned in place to prevent accidental or intentional movement while the RCL is being operated in remote.

3. The railroad should have strict procedures in place to ensure that only the intended RCTs are assigned to the appropriate RCL.

(e) Inspections and Tests

1. The RCL system must be included as part of the calendar day inspection required by 49 CFR 229.21, since this equipment becomes an appurtenance to the locomotive.

2. Each time an RCT is used for the first time on each shift, a test of the air brakes and the RCT's safety features (tilt switch and alert device) should be conducted. The test would not be required if the RCT were being directly transferred from one RCO to another with no change in remote status.

3. The RCL system (both the RCT and RCR), should be designed to perform a self-diagnostic test of the electronic components of the system. The system should be designed to immediately "fail safe" (full service application of the locomotive and train brakes and the elimination of locomotive tractive effort) in the event a failure is detected.

4. The RCL system components that interface with the mechanical devices of the locomotive, e.g., air pressure monitoring devices, pressure switches, speed sensors, etc., should be inspected and calibrated as often as necessary, but not less than the locomotive's periodic (92-day) inspection. It is recommended that records of such inspections and calibrations be kept.
(f) **Notification of RCL Use and Protection of Workers**

1. Each RCL should have a tag placed on the control stand throttle indicating the locomotive is being used in a remote control mode. The tag should be removed when the locomotive is placed back in manual mode.

2. In areas where RCL operations are being conducted, warning signs should be posted indicating that there is no operator in the control compartment of the locomotive. These warning signs should be highly visible and posted at conspicuous locations so as to maximize their exposure to those most likely to encounter RCL operations.

3. Whenever worker protection is required according to 49 CFR part 218, the locomotive should be placed into manual mode and be properly secured. The appropriate blue signal protection should then be provided.

(g) **Accident-Incident Reporting Procedures**

1. All accident and/or incidents described in 49 CFR part 225 must be reported to FRA using the appropriate "remote control" reporting codes.

2. Railroads are also reminded that they are required to comply with the provisions of 49 CFR part 229.17-Accident reports.

66 Fed. Reg. 10340
ROADWAY MAINTENANCE MACHINE SAFETY

§ 214.501 -- Purpose and scope.
(a) The purpose of this subpart is to prevent accidents and casualties caused by the lawful operation of on-track roadway maintenance machines and hi-rail vehicles.
(b) This subpart prescribes minimum safety standards for on-track roadway maintenance machines and hi-rail vehicles. An employer may prescribe additional or more stringent standards that are consistent with this subpart.
(c) Any working condition that involves the protection of employees engaged in roadway maintenance duties covered by this subpart but is not within the subject matter addressed by this subpart, including employee exposure to noise, shall be governed by the regulations of the U.S. Department of Labor, Occupational Safety and Health Administration (29 CFR part 110).

§ 214.503 -- Good faith challenges; procedures for notification and resolution.
(a) An employee operating an on-track roadway maintenance machine will inform the employer whenever the employee makes a good faith determination that the employer's rules governing the machine do not comply with FRA regulations.
(b) Any employee charged with operating an on-track roadway maintenance machine covered by this subpart may refuse to operate the machine if the employee makes a good faith determination that it does not comply with this subpart or has a condition that prohibits its safe operation. The employer will not require the employee to operate the machine until the challenge resulting from the good faith determination is resolved.
(c) Each employer will have in place, and will follow, written procedures to assure prompt and equitable resolution of challenges resulting from good faith determinations made in accordance with this section. The procedures will include specific steps to be taken by the employer to investigate each good faith challenge, as well as procedures to follow once the employer finds a challenged machine does not comply with this subpart or is otherwise unsafe to operate. The procedures will also include the title and location of the employer's designated official.

§ 214.505 -- Required environmental control and protection systems for new on-track roadway maintenance machines with enclosed cabs.
(a) The following new on-track roadway maintenance machines will be equipped with enclosed cabs with operative heating systems, operative air conditioning systems, and operative positive pressurized ventilation systems:
   (1) Ballast regulators;
   (2) Tampers;
   (3) Mechanical brooms;
   (4) Rotary scarifiers;
   (5) Undercutters; or
   (6) Functional equivalents of any of the machines listed in the paragraph
(b) New on-track roadway maintenance machines, and existing roadway maintenance machines specifically designated by the employer, of the types listed in paragraph (a) of this section will be capable of protecting employees on the machines from exposure to air contaminants, in accordance with 29 CFR 1910.1000.
(c) An employer will maintain a list of new and designated roadway maintenance machines of the types listed in paragraph (a) of this section. The list will be kept current and available to the Federal Railroad Administration and other Federal and state agencies upon request.

(d) An existing roadway maintenance machine of the types listed in paragraph (a) of this section becomes "designated" when the employer adds the machine to the list required in paragraph (c) of this section. The designation is irrevocable, and the designated existing roadway maintenance machine remains subject to paragraph (b) of this section until it is retired or sold.

(e) If the ventilation system on a new on-track roadway maintenance machine or a designated existing on-track roadway maintenance machine of the types listed in paragraph (a) of this section becomes incapable of protecting employees on the machine from exposure to air contaminants in accordance with 29 CFR 1910.1000, personal respiratory protective equipment will be provided for each operator of that machine until the machine is repaired in accordance with § 214.531.

(f) Personal protective equipment provided for operators of new on-track roadway maintenance machines and designated existing on-track roadway maintenance machines of the types listed in paragraph (a) of this section will meet U.S. Department of Labor standards set forth in 29 CFR 1910.134, including Appendices A, B-1, B-2, C, and D of that section.

(g) New on-track roadway maintenance machines with enclosed cabs, other than the types listed in paragraph (a) of this section, will be equipped with operative heating and ventilation systems.

(h) When new on-track roadway maintenance machines require operation from non-enclosed stations outside of the main cab, the non-enclosed stations will be equipped, where feasible from an engineering standpoint, with a permanent or temporary roof, canopy, or umbrella designed to provide some cover from normal rain and midday sun.

§ 214.507 -- Required safety equipment for new on-track roadway maintenance machines.

(a) Each new on-track roadway maintenance machine will be equipped with:
   1. A seat for each operator, except as provided for in paragraph (b) of this section;
   2. A safe and secure position with handholds, handrails, or a secure seat for each roadway worker transported on that machine, as well as protection from moving parts inside of the cab;
   3. A positive method of securement for turntables through engagement of pins and hooks that block the descent of devices below the rail head when not in use;
   4. A windshield with safety glass, or other material with similar properties, and power windshield wipers or suitable alternatives that provide the operator an equivalent level of vision if windshield wipers are incompatible with the windshield material;
   5. A machine braking system capable of effectively controlling the movement of the machine under normal operating conditions;
   6. A first aid kit that is readily accessible and meets U.S. Department of Labor requirements of 29 CFR 1926.50(d)(2); and
   7. An operative and properly charged fire extinguisher of 5 BC rating or higher which is securely mounted and readily accessible to the operator from the operator's work station.
(b) New on-track roadway maintenance machines designed to be operated and transported by the operator in a standing position will be equipped with handholds and handrails to provide the operator with a safe and secure position.

(c) Each new on-track roadway maintenance machine that weighs more than 32,500 pounds light weight and is operated in excess of 20 mph will be equipped with a speed indicator that is accurate within # 5 mph of actual speed at speeds 10 mph and above.

(d) Each new on-track roadway maintenance machine will have the as-built light weight displayed in a conspicuous location on the machine.

§ 214.509 -- Required visual illumination and reflective devices for new on-track roadway maintenance machines.
Each new on-track roadway maintenance machine will be equipped with the following visual illumination and reflective devices:

(a) An illumination device, such as a headlight, capable of illuminating obstructions on the track ahead in the direction of travel for a distance of 300 feet under normal weather and atmospheric conditions;

(b) Work lights, if the machine is operated during the period from 1/2 hour after sunset to 1/2 hour before sunrise or in dark areas such as tunnels, unless equivalent lighting is otherwise provided;

(c) An operative 360-degree intermittent warning light or beacon mounted on the roof of the machine. New roadway maintenance machines that are not equipped with fixed roofs and have a light weight greater than 7,000 pounds but less than 17,500 pounds are exempt from this requirement;

(d) A brake light activated by the application of the machine braking system, and designed to be visible for a distance of 300 feet under normal weather and atmospheric conditions; and

(e) Visual reflective equipment, such as rearview mirrors.

§ 214.511 -- Required audible warning devices for new on-track roadway maintenance machines.
Each new on-track roadway maintenance machine will be equipped with:

(a) A horn or audible warning device that produces a sound loud enough to be heard by roadway workers and other machine operators within the immediate work area. The triggering mechanism for the device shall be clearly identifiable and within easy reach of the machine operator; and

(b) An automatic change-of-direction alarm which provides an audible signal that is at least three seconds long and is distinguishable from the surrounding noise.

§ 214.513 -- Retrofitting of existing on-track roadway maintenance machines.

(a) Each existing on-track roadway maintenance machine will have a safe and secure position for each roadway worker transported on that machine and protection from moving parts inside the cab.

(b) By [date one year following the effective date of this rule], each existing on-track roadway maintenance machine will have stenciling or documentation on the machine identifying the location of safe and secure positions for the machine operator and roadway workers to be transported on the machine. If roadway workers are not permitted on the machine, the prohibition will be noted by the stenciling or documentation on the machine.
(c) By [18 months following the effective date of this rule], each existing on-track roadway maintenance machine will be equipped with a permanent or portable horn or audible warning device that produces a sound loud enough to be heard by roadway workers and other machine operators within the immediate work area. The triggering mechanism for the device will be clearly identifiable and within easy reach of the machine operator.

(d) By [18 months following the effective date of this rule], each existing on-track roadway maintenance machine will be equipped with a permanent illumination device or a portable light that is securely placed and not hand-held. The illumination device or portable light will be capable of illuminating obstructions on the track ahead for a distance of 300 feet under normal weather and atmospheric conditions when the machine is operated during the period from 1/2 hour after sunset to 1/2 hour before sunrise or in dark areas such as tunnels.

§ 214.515 -- Overhead covers for existing on-track roadway maintenance machines.
(a) Overhead covers on existing on-track roadway maintenance machines will be repaired by [date 18 months following the effective date of this rule] and thereafter maintained in accordance with the provisions of § 214.531.
(b) The employer will evaluate the feasibility of providing an overhead cover for an existing on-track roadway maintenance machine if requested in writing by the operator assigned to operate that machine or by the operator's designated representative. The employer will provide the operator a written response for each request within 60 days. When the employer finds the addition of an overhead cover is not feasible, the response will include an explanation of the reasoning used by the employer to reach that conclusion.

§ 214.517 -- Retrofitting of existing on-track roadway maintenance machines manufactured after 1990.
In addition to the requirements of § 214.513, after [date 18 months following the effective date of this rule], each existing on-track roadway maintenance machine manufactured after 1990 must have the following:
(a) A change-of-direction alarm or rearview mirror or other rearward viewing device, if feasible from an engineering standpoint;
(b) An operative heater, when the machine is equipped with a heater by the manufacturer and is operated at an ambient temperature less than 50 degrees Fahrenheit;
(c) The light weight of the machine stenciled, or otherwise clearly displayed, on the machine if the light weight is known;
(d) Reflective material, or a reflective device, or operable brake lights;
(e) Safety glass when glass is normally replaced, except that replacement glass that is specifically intended for on-track roadway maintenance machines and is in the employer's inventory as of [effective date of this rule] may be utilized until exhausted;
(f) A turntable restraint device to prevent undesired lowering, or a warning light indicating that the turntable is not in the normal travel position; and
(g) Handholds, handrails, or a secure seat or bench position for each roadway worker transported on the machine.
§ 214.519 -- Floors, decks, stairs, and ladders for on-track roadway maintenance machines.

Floors, decks, stairs, and ladders of on-track roadway maintenance machines will be of appropriate design and maintained to provide secure access and footing, and will be free of oil, grease, or any obstruction which creates a slipping, falling, or fire hazard.

§ 214.521 -- Flagging equipment for on-track roadway maintenance machines and hi-rail vehicles.

When operating over trackage subject to a railroad operating rule requiring flagging, each on-track roadway maintenance machine and each hi-rail vehicle will have on board a flagging kit that complies with the operating rules of the railroad if the equipment is not part of a roadway work group or is the lead or trailing piece of equipment in a roadway work group operating under the same occupancy authority.

§ 214.523 -- Hi-rail vehicles.

(a) The hi-rail gear of all hi-rail vehicles will be safety inspected at least annually. Tram, wheel wear and gage measurements will be adjusted if necessary to allow the vehicle to be safely operated.
(b) Each employer will keep records pertaining to compliance with paragraph (a) of this section. Records may be kept on forms provided by the employer or by electronic means. The employer will retain each record for at least one year, and the records will be available for inspection and copying by the Federal Railroad Administration during normal business hours. The records may be kept on the hi-rail vehicle or at a location designated by the employer.
(c) A new hi-rail vehicle will be equipped with:
   (1) An automatic change-of-direction alarm or backup alarm that provides an audible signal at least three seconds long and distinguishable from the surrounding noise; and
   (2) An operable 360-degree intermittent warning light or beacon mounted on the outside of the vehicle.
(d) Prior to starting work each day, the operator of a new hi-rail vehicle will check the hi-rail vehicle for compliance with this subpart.
(e) Non-complying conditions that cannot be repaired immediately will be tagged and dated in a manner prescribed by the employer and reported to the designated official.
(f) Non-complying automatic change-of-direction alarms, backup alarms, or 360-degree intermittent warning lights or beacons will be repaired or replaced as soon as practical within seven days.

§ 214.525 -- Towing with on-track roadway maintenance machines or hi-rail vehicles.

(a) When used to tow pushcars or other maintenance-of-way equipment, each on-track roadway maintenance machine or hi-rail vehicle will be equipped with a towing bar or other coupling device that provides a safe and secure attachment.
(b) An on-track roadway maintenance machine or hi-rail vehicle will not be used to tow pushcars or other maintenance-of-way equipment if the towing would cause the machine or hi-rail vehicle to exceed the capabilities of its braking system. In judging the limit of the braking system, the employer will consider the track grade (slope), as well as the number and weight of pushcars or other equipment being towed.
§ 214.527 -- Inspection for compliance; schedule for repairs.
(a) Prior to starting work each day, the operator of the on-track roadway maintenance machine will check the machine components for compliance with this subpart.
(b) Non-complying conditions that cannot be repaired immediately will be tagged and dated in a manner prescribed by the employer and reported to the designated official.
(c) The operation of an on-track roadway maintenance machine with noted non-complying conditions will be governed by the following requirements:
   (1) An on-track roadway maintenance machine with headlights or work lights that are not in compliance may be operated from 1/2 hour before sunrise to 1/2 hour after sunset for seven calendar days;
   (2) Portable horns may be substituted for non-complying or missing horns for a period not to exceed seven calendar days;
   (3) Fire extinguishers readily available for use may temporarily replace missing, defective or discharged fire extinguishers on new on-track roadway maintenance machines for a period not to exceed seven calendar days pending the permanent replacement or repair of the missing, defective or used fire extinguisher;
   (4) Non-complying automatic change-of-direction alarms, backup alarms, or 360-degree intermittent warning lights or beacons will be repaired or replaced as soon as practical within seven calendar days; and
   (5) A structurally defective or missing operator seat will be replaced or repaired within 24 hours or by the start of the machine's next tour of duty, whichever is later. The machine may be operated for the remainder of the operator's tour of duty if the defective or missing operator seat does not prevent its safe operation.

§ 214.529 -- In-service failure of primary braking system.
(a) In the event of a total in-service failure of its primary braking system, an on-track roadway maintenance machine may be operated for the remainder of the tour of duty with the use of a secondary braking system or by coupling to another machine, if such operations may be done safely.
(b) If the total in-service failure of an on-track roadway maintenance machine's primary braking system occurs where other equipment is not available for coupling, the machine may, if it is safe to do so, travel to a clearance or repair point where it shall be placed out of service until repaired.

§ 214.531 -- Schedule of repairs.
Except as provided in §§ 214.527(c)(5), 214.529, and 214.533, an on-track roadway maintenance machine or new hi-rail vehicle that does not meet all the requirements of this subpart will be repaired as soon as practical within seven calendar days. If repairs are not made within seven calendar days, the on-track roadway maintenance machine or new hi-rail vehicle will be placed out of service.
§ 214.533 -- Schedule of repairs; subject to availability of parts.
(a) The employer will order parts necessary to repair a non-complying condition on an on-track roadway maintenance machine or a new hi-rail vehicle by the end of the next business day following the report of the defect.
(b) When the employer cannot repair a non-complying condition as required by § 214.531 because of the temporary unavailability of necessary parts, the employer will repair the on-track roadway maintenance machine or new hi-rail vehicle within seven days after receiving the necessary parts. The employer may continue to use the on-track roadway maintenance machine or new hi-rail with a non-complying condition until the necessary parts for repair are received, subject to the requirements of § 214.503. However, if repair of a non-complying condition exceeds 30 days following the report of the defect, the employer will remove the on-track roadway maintenance machine or new hi-rail vehicle from service.
(c) If the employer fails to order parts necessary to repair the reported non-complying condition, or if it fails to install available parts within the required seven calendar days, the on-track roadway maintenance machine or new hi-rail vehicle will be removed from service until brought into compliance with this subpart.
(d) Each employer will maintain records pertaining to compliance with this section. Records may be kept on forms provided by the employer or by electronic means. The employer will retain each record for at least one year, and the records will be available for inspection and copying by the Federal Railroad Administration during normal business hours. The records may be kept on the on-track roadway maintenance machine or new hi-rail vehicle or at a location designated by the employer.

49 CFR PART 514
STANDARD FRA 230

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230.100 Defects in tender truck axles and journals.
230.101 Steam locomotive driving journal boxes.
230.102 Tender plain bearing journal boxes.
230.103 Tender roller bearing journal boxes.
230.104 Driving box shoes and wedges.
230.105 Lateral motion.

**Trucks, Frames and Equalizing System**

230.106 Steam locomotive frame.
230.107 Tender frame and body.
230.108 Steam locomotive leading and trailing trucks.
230.109 Tender trucks.
230.110 Pilots.
230.111 Spring rigging.

**Wheels and Tires**

230.112 Wheels and tires.
230.113 Wheels and tire defects.

230.114 Wheel centers.

**Steam Locomotive Tanks**

230.115 Feed water tanks.

230.116 Oil tanks.

**Subpart A--General**

§ 230.1 -- Purpose and scope.
This part prescribes minimum Federal safety standards for all steam-propelled locomotives operated on railroads to which this part applies. This part does not restrict a railroad from adopting and enforcing additional or more stringent requirements not inconsistent with this part.

§ 230.2 -- Applicability.
(a) Except as provided in paragraph (b) of this section, this part applies to all railroads that operate steam locomotives.
(b) This part does not apply to:
   (1) A railroad with track gage of less than 24 inches;
   (2) A railroad that operates exclusively freight trains and does so only on track inside an installation that is not part of the general system of transportation;
   (3) Rapid transit operations in an urban area that are not connected to the general system of transportation; or
   (4) A railroad that operates passenger trains and does so only on track inside an installation that is insular, i.e., its operations are limited to a separate enclave in such a way that there is no reasonable expectation that the safety of the public-except a business guest, a licensee of the railroad or an affiliated entity, or a trespasser-would be affected by the operation. An operation will not be considered insular if one or more of the following exists on its line:
      (i) A public highway-rail crossing that is in use;
      (ii) An at-grade rail crossing that is in use;
      (iii) A bridge over a public road or waters used for commercial navigation;
   or
   (iv) A common corridor with another railroad, i.e., its operations are conducted within 30 feet of those of any other railroad.
(c) See appendix A of part 209 for a current statement of the FRA's policy on its exercise of jurisdiction.

§ 230.3 -- Implementation.
Except as provided in paragraphs (a) through (c) of this section, the locomotive owner and/or operator shall perform a 1472 service day inspection that meets the requirements of § 230.17 when the locomotive's flues would be required to be removed
pursuant to § 230.10, of the regulations in effect prior to January 18, 2000. (See 49 CFR parts 200-999, revised October 1, 1978) At the time the locomotive owner and/or operator completes this inspection, it must begin to comply with the rest of the provisions of this part. Up until such time, and except as provided in paragraphs (a) through (c) of this section, compliance with the regulations in effect prior to January 18, 2000 (See 49 CFR parts 200-999, revised October 1, 1978) will constitute full compliance with this part. Any interested person may obtain the October 1, 1978 revision of 49 CFR parts 200-999 by contacting the Federal Railroad Administration, Office of Chief Counsel, 400 7th Street, SW, Washington, DC 20590.


(b) **Interim flue removal extensions.** FRA will continue to consider requests for flue removal extensions under the provisions of § 230.10 of the regulations in effect prior to January 18, 2000 (See 49 CFR parts 200-999, revised October 1, 1978) until January 18, 2002.

(c) **Petition for special consideration.** The locomotive owner or operator may petition FRA for special consideration of this part's implementation with respect to any locomotive that has either fully or partially satisfied the requirements of § 230.17 within the three (3) year period prior to September 25, 1998—provided the locomotive is in full compliance with § 230.17 by the time the petition is actually filed. n1

n1 **Note:** As an example, where a locomotive has received a proper boiler inspection after September 25, 1995 pursuant to §§ 230.10 and 230.11 of the regulations in effect prior to January 18, 2000 but has not had its FRA Form No. 4 updated, the locomotive owner or operator may update and verify the FRA Form No. 4 for that locomotive, and submit a timely petition that requests retroactive credit for the boiler inspection. (See 49 CFR parts 200-999, revised October 1, 1978.)

(1) **Petition process.** Petitions must be filed by January 18, 2001 and must be accompanied by all relevant documentation to be considered, including a FRA Form No. 4 (see appendix C of this part) that has been calculated in accordance with § 230.17, and all records that demonstrate the number of days the locomotive has been in service. Based upon the documentation provided, FRA will calculate the number of "service days" the locomotive has accrued and will notify the petitioner of the number of service days that remain in the locomotive's 1472 service day cycle. Petitions should be sent to FRA by some form of registered mail to ensure a record of delivery. FRA will investigate these petitions and will respond to these petitions within one year of their receipt. FRA will send its response by some form of registered mail to ensure that a record of delivery is created. In its response, FRA may grant the petition or deny it. If FRA grants the petition, the entirety of the revised requirements will become effective upon receipt of FRA's response, unless FRA's response indicates otherwise. If FRA denies the petition, the rule will become effective as provided in the first paragraph of this section.

(2) **FRA silence.** Anyone who does not receive a response within one year of the date they filed their petition, whether through administrative or postal error, must notify FRA that the response has not been received. The notification should be provided to FRA by some form of registered mail to ensure a record of delivery. Upon receipt of this notification, FRA will ensure that a response is either issued, or re-issued, as soon as possible. In the interim, however, any operator who is at the end of their inspection cycle
under the rules in effect prior to January 18, 2000 (See 49 CFR parts 200-999, revised
October 1, 1978) will be allowed to remain in service without conducting the required
inspection under § 230.17 for an additional six months, or until they receive FRA's
decision, whichever occurs first.

§ 230.4 -- Penalties.
(a) Any person who violates any requirement of this part or causes the violation of
any such requirement is subject to a civil penalty of at least $500 and not more than
$11,000 per violation, except that: Penalties may be assessed against individuals only for
willful violations, and, where a grossly negligent violation or a pattern of repeated
violations has created an imminent hazard of death or injury to persons, or has caused
death or injury, a penalty not to exceed $22,000 per violation may be assessed. Each day
a violation continues shall constitute a separate offense. See appendix A of part 209 for a
statement of agency civil penalty policy.
(b) Any person who knowingly and willfully falsifies a record or report required by
this part may be subject to criminal penalties under 49 U.S.C. 21311.

§ 230.5 -- Preemptive effect.
The Locomotive Boiler Inspection Act (49 U.S.C. 20701-20703) preempts all
State laws or regulations concerning locomotive safety. Napier v. Atlantic Coast Line
R.R., 272 U.S. 605 (1926). However, FRA believes Congress did not intend to preempt
State laws or regulations concerning rail operations over which FRA does not exercise
jurisdiction. Therefore, in issuing this part, it is FRA's intent that State laws or regulations
applicable to those rail operations to which this part does not apply (i.e., insular tourist
operations) not be preempted.

§ 230.6 -- Waivers.
(a) A person subject to a requirement of this part may petition the Administrator of
FRA for a waiver of compliance with such requirement. The filing of such a petition does
not affect that person's responsibility for compliance with that requirement while the
petition is being considered.
(b) Each petition for waiver under this section must be filed in the manner and contain
the information required by part 211 of this chapter.
(c) If the Administrator finds that a waiver of compliance is in the public interest and
is consistent with railroad safety, the Administrator may grant the waiver subject to any
conditions the Administrator deems necessary. Where a waiver is granted, the
Administrator publishes a notice containing the reasons for granting the waiver.
(d) All waivers of every form and type from any requirement of any order or
regulation implementing the Locomotive Boiler Inspection Act, 36 Stat. 913, as amended,
applicable to one or more steam locomotives, shall lapse on January 18, 2000 (49 U.S.C
20702), unless a copy of the grant of waiver is filed for reassessment prior to that date
with the Office of Safety, Federal Railroad Administration, 400 Seventh Street,
Washington, DC 20590. FRA will review the waiver and notify the applicant whether the
waiver has been continued.
§ 230.7 -- Responsibility for compliance.
(a) The locomotive owner and/or operator is directly responsible for ensuring that all requirements of this part are satisfied, and is the entity primarily responsible for compliance with this part.
(b) Although the duties imposed by this part are generally stated in terms of the duties of a railroad or a steam locomotive owner and/or operator, any person, including a contractor for a railroad, who performs any function covered by this part must perform that function in accordance with this part.
(c) Chapter 207 of Title 49 of the United States Codes makes it unlawful for any railroad to use or permit to be used on its line any steam locomotive or tender unless the entire steam locomotive or tender and its parts and appurtenances are in proper condition and safe to operate in the service to which they are put, without unnecessary danger of personal injury and have been inspected and tested as required by this part.

§ 230.8 -- Definitions.
As used in this part, the terms listed in this section have the following definitions:
Administrator. The Administrator of the Federal Railroad Administration or the Administrator's delegate.
Alteration. Any change to the boiler which affects its pressure retention capability. Rating changes are considered alterations.
ANSI. American National Standards Institute.
API. American Petroleum Institute.
ASME. American Society of Mechanical Engineers.
Boiler surfaces. The boiler interior is all the space inside a boiler occupied by water or steam under pressure, and all associated surfaces inside that space exposed to that water and steam. The boiler exterior is the opposite surface of all components directly exposed to the boiler interior. This includes the fire side of the firebox sheets.
Break. A fracture resulting in complete separation into parts.
Code of original construction. The manufacturer's or industry code in effect when the boiler was constructed. If the exact code is not known, the closest contemporary code may be used provided it does not pre-date the construction date of the boiler.
Crack. A fracture without complete separation into parts, except that castings with shrinkage cracks or hot tears that do not significantly diminish the strength of the member are not considered to be cracked.
Dead locomotive. A locomotive unable to produce tractive effort.
Fire. Anything that produces products of combustion that heat transferring components of the locomotive are exposed to.
FRA. The Federal Railroad Administration.
Locomotive operator. Person or entity which operates, but which does not necessarily own, one or more steam locomotives. This term means, for purposes of inspection and maintenance responsibility, the entity responsible for the day-to-day operation of the steam locomotive, or the delegate thereof. This entity may be a railroad or a person or persons who operate a steam locomotive under contract for a railroad.
Locomotive owner. Person or entity which owns, but which does not necessarily operate, one or more steam locomotives that is operated on a railroad to which this part applies. For purposes of inspection and maintenance responsibility, this term includes that entity's delegate as well.
MAWP. Maximum allowable working pressure as specified by the steam locomotive specification FRA Form No. 4. (See appendix C of this part.)

NBIC. National Board Inspection Code published by the National Board of Boiler and Pressure Vessel Inspectors.

NDE. Non-destructive Examination.

NPS. Nominal Pipe Size.

Person. An entity of any type covered under 1 U.S.C. 1, including but not limited to the following: a railroad; a manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacturer, lessor, lessee, or independent contractor.

Railroad. Any form of non-highway ground transportation that runs on rails or electromagnetic guideways and any entity providing such transportation, including commuter or other short-haul railroad passenger service in a metropolitan or suburban area and commuter railroad service that was operated by the Consolidated Rail Corporation on January 1, 1979; and high speed ground transportation systems that connect metropolitan areas, without regard to whether those systems use new technologies not associated with traditional railroads; but does not include rapid transit operations in an urban area that are not connected to the general railroad system of transportation.

Renewal. Replacement in kind with a newly manufactured or remanufactured (restored to original tolerances) component. Materials shall be suitable for the service intended.

Repair. Any work which results in a restoration in kind.

Serious injury. An injury that results in the amputation of any appendage, the loss of sight in an eye, the fracture of a bone, or the confinement in a hospital for a period of more than 24 consecutive hours.

Service day. Any calendar day that the boiler has steam pressure above atmospheric pressure with fire in the firebox. In the case of a fireless steam locomotive, any calendar day that the boiler has steam pressure above atmospheric pressure.

Stayed portion of the boiler. That portion of the boiler designed to require support to retain internal pressure by the addition of strength members, such as staybolts, braces, diagonal stays, tubes, etc.

Steam locomotive. A self-propelled unit of equipment powered by steam that is either designed or used for moving other equipment. This includes a self-propelled unit designed or used to carry freight and/or passenger traffic.

Unstayed Portion of the Boiler. That portion of the boiler designed to be self-supported in retaining internal pressure without additional strength members such as staybolts, braces, diagonal stays, tubes, etc.

Wastage. A reduction in the thickness of a mechanical component, such as a pipe or sheet.

§ 230.9 -- Information collection.

(a) [Reserved].

§ 230.10 -- [Reserved]

General Inspection Requirements

§ 230.11 -- Repair of non-complying conditions.

The steam locomotive owner and/or operator shall repair any steam locomotive that fails to comply with the conditions of this part, and shall approve any such repairs made, before placing the locomotive back into service.

§ 230.12 -- Movement of non-complying steam locomotives.

(a) General limitations on movement. A steam locomotive with one or more non-complying conditions may be moved only as a lite steam locomotive or a steam locomotive in tow, except as provided in paragraph (b) of this section. Cars essential to the movement of the steam locomotive and tender(s), including tool cars and a bunk car, may accompany lite movements.

(b) Conditions for movement. Prior to movement, the steam locomotive owner and/or operator shall determine that it is safe to move the locomotive, determine the maximum speed and other restrictions necessary for safely conducting the movement, and notify in writing the engineer in charge of the defective steam locomotive and, if towed, the engineer in charge of the towing locomotive consist, as well as all other crew members in the cabs, of the presence of the non-complying steam locomotive and the maximum speed and other movement restrictions. In addition, a tag bearing the words "non-complying locomotive" shall be securely attached to each defective steam locomotive and shall contain the following information:

1. The steam locomotive number;
2. The name of the inspecting entity;
3. The inspection location and date;
4. The nature of the defect;
5. Movement restrictions, if any;
6. The destination; and
7. The signature of the person making the determinations required by this paragraph (b).

(c) Yard movements. A non-complying steam locomotive may be moved lite or dead within a yard at speeds not in excess of 10 miles per hour without meeting the requirements of paragraph (b) of this section if the movement is solely for the purpose of repair. The locomotive owner and/or operator is responsible for ensuring that the movement may be safely made.

(d) Non-complying conditions developed en route. The locomotive owner and/or operator may continue in use a steam locomotive that develops a non-complying condition en route until the next daily inspection or the nearest forward point where the repairs necessary to bring it into compliance can be made, whichever is earlier. Before continuing en route, the steam locomotive owner and/or operator shall determine that it is safe to move the steam locomotive, determine the maximum speed and other restrictions necessary for safely conducting the movement, and notify in writing the engineer in charge of the defective steam locomotive and, if towed, the engineer in charge of the towing steam locomotive consist, as well as all other crew members in the cabs, of the
presence of the non-complying steam locomotive and the maximum speed and other
movement restrictions.
(e) Special notice for repair. Nothing in this section authorizes the movement of a
steam locomotive subject to a Special Notice for Repair unless the movement is made in
accordance with the restrictions contained in the Special Notice.

§ 230.13 -- Daily inspection.
(a) General. An individual competent to conduct the inspection shall inspect each
steam locomotive and its tender each day that they are offered for use to determine that
they are safe and suitable for service. The daily inspection shall be conducted to comply
with all sections of this part, and a daily inspection report filed, by an individual
competent to conduct the inspection. See appendices A and B of this part.
(b) Pre-departure. At the beginning of each day the steam locomotive is used, an
individual competent to do so shall, together with the daily inspection required in
paragraph (a) of this section, inspect the steam locomotive and its tender and
appurtenances to ensure that they are safe and suitable for service, paying special attention
to the following items:
   (1) Water glasses and gauge cocks;
   (2) Boiler feedwater delivery systems, such as injectors and feedwater pumps; and
   (3) Air compressors and governors, and the air brake system.
(c) Inspection reports. The results of the daily inspection shall be entered on an FRA
Form No. 2 (See appendix C of this part) which shall contain, at a minimum, the name of
the railroad, the initials and number of the steam locomotive, the place, date and time of
the inspection, the signature of the employee making the inspection, a description of the
non-complying conditions disclosed by the inspection, conditions found in non-
compliance during the day and repaired and the signature of the person who repaired the
non-conforming conditions. This report shall be filed even if no non-complying conditions
are detected. A competent individual shall sign the report, certifying that all non-
complying conditions were repaired before the steam locomotive is operated. This report
shall be filed and retained for at least 92 days at the location designated by the steam
locomotive owner and/or operator.

§ 230.14 -- Thirty-one (31) service day inspection.
(a) General. An individual competent to conduct the inspection shall perform the 31
service day inspection after the steam locomotive has accrued 31 service days. This
inspection shall consist of all 31 service day inspection items and all daily inspection
items. See appendix A of this part. Days in service shall be counted, recorded and readily
available for inspection when requested by an FRA inspector.
(b) FRA notification. FRA Regional Administrators or their delegate(s) may require a
steam locomotive owner or operator to provide FRA with timely notification before
performing a 31 service day inspection. If the Regional Administrator or their delegate
indicates their desire to be present for the 31 service day inspection, the steam locomotive
owner and/or operator shall provide them a scheduled date and location for inspection.
Once scheduled, the inspection must be performed at the time and place specified, unless
the Regional Administrator and the steam locomotive owner and/or operator mutually
agree to reschedule. If the Regional Administrator requests the inspection be performed on
another date but the steam locomotive owner and/or operator and the Regional
Administrator are unable to agree on a date for rescheduling, the inspection may be performed as scheduled.

c) **Filing inspection reports.** Within 10 days of conducting the 31 service day inspection, the steam locomotive owner and/or operator shall file, for each steam locomotive inspected, a report of inspection (FRA Form No. 1), in the place where the steam locomotive is maintained and with the FRA Regional Administrator for that region. When the report of annual inspection (FRA Form No. 3), is filed, the FRA Form No. 1 does not have to be filed until the next 31 service day inspection. (See Appendix B of this part.)

§ 230.15 -- Ninety-two (92) service day inspection.

(a) **General.** An individual competent to conduct the inspection shall perform the 92 service day inspection after the steam locomotive has accrued 92 "service-days." This inspection shall include all daily, all 31 service day, and all 92 service day inspection items. See appendix A of this part. Days in service shall be counted, recorded, and readily available for inspection when requested by an FRA inspector.

(b) **Filing inspection reports.** Within 10 days of conducting the 92 service day inspection, the steam locomotive owner and/or operator shall file, for each steam locomotive inspected, a report of inspection (FRA Form No. 1), in the place the locomotive is maintained and with the FRA Regional Administrator for that region. When the report of annual inspection (FRA Form No. 3), is filed, the FRA Form No. 1 does not have to be filed until the next 92 service day inspection. (See appendix C of this part.)

§ 230.16 -- Annual inspection.

(a) **General.** (1) An individual competent to conduct the inspection shall perform the annual inspection after 368 calendar days have elapsed from the time of the previous annual inspection. This inspection shall include all daily, all 31 service day, all 92 service day, and all annual inspection items. (See appendix B of this part.)

(2) **Fifth annual inspection.** An individual competent to do so shall perform a flexible staybolt and cap inspection in accordance with § 230.41 at each fifth annual inspection.

(b) **FRA notification.** FRA Regional Administrators shall be provided written notice at least one month prior to an annual inspection and shall be afforded an opportunity to be present. If the Regional Administrator or their delegate indicates a desire to be present, the steam locomotive owner and/or operator will provide a scheduled date and location for the inspection. Once scheduled, the inspection must be performed at the time and place specified, unless the Regional Administrator and the steam locomotive owner and/or operator mutually agree to reschedule. If the Regional Administrator requests the inspection be performed on another date but the steam locomotive owner and/or operator and the Regional Administrator are unable to agree on a date for rescheduling, the inspection may be performed as scheduled.

(c) **Filing inspection reports.** Within 10 days of completing the annual inspection, the steam locomotive owner and/or operator shall file, for each steam locomotive inspected, a report of inspection (FRA Form No. 3), in the place where the steam locomotive is maintained and with the FRA Regional Administrator for that region. (See appendix A of this part.)
§ 230.17 -- One thousand four hundred seventy-two (1472) service day inspection.
(a) General. Before any steam locomotive is initially put in service or brought out of retirement, and after every 1472 service days or 15 years, whichever is earlier, an individual competent to conduct the inspection shall inspect the entire boiler. In the case of a new locomotive or a locomotive being brought out of retirement, the initial 15 year period shall begin on the day that the locomotive is placed in service or 365 calendar days after the first flue tube is installed in the locomotive, whichever comes first. This 1472 service day inspection shall include all annual, and 5th annual, inspection requirements, as well as any items required by the steam locomotive owner and/or operator or the FRA inspector. At this time, the locomotive owner and/or operator shall complete, update and verify the locomotive specification card (FRA Form No. 4), to reflect the condition of the boiler at the time of this inspection. See appendices A and B of this part.
(b) Filing inspection reports. Within 30 days of completing the 1472 service day inspection, the steam locomotive owner and/or operator shall, for each steam locomotive inspected, file in the place where the steam locomotive is maintained and with the FRA Regional Administrator for that region a report of inspection (FRA Form No. 3), and a completed FRA Form No.4. See appendix C of this part.

Recordkeeping Requirements

§ 230.18 -- Service days.
(a) Service day record. For every steam locomotive currently in service, the steam locomotive owner and/or operator shall have available, and be able to show an FRA inspector upon request, a current copy of the service day record that contains the number of service days the steam locomotive has accrued since the last 31, 92, Annual and 1472 service day inspections.
(b) Service day report. By the 31st of every January, every steam locomotive owner and/or operator shall file a service day report, FRA Form No. 5, with the Regional Administrator accounting for the days the steam locomotive was in service from January 1 through December 31st of the preceding year. If the steam locomotive was in service zero days during that period, a report must still be filed to prevent the steam locomotive from being considered retired by FRA. (See appendix B of this part.)
(c) Retirement where no service day reports filed. Where the steam locomotive owner and/or operator does not file the required service day report for a steam locomotive, that steam locomotive may be considered retired by FRA. The steam locomotive owner and/or operator must complete all 1472 service day inspection items to return a retired steam locomotive to service.

§ 230.19 -- Posting of FRA Form No. 1 and FRA Form No. 3.
(a) FRA Form No. 1. The steam locomotive owner and/or operator shall place a copy of the 31 and 92 service day inspection report (FRA Form No. 1), properly filled out, under transparent cover in a conspicuous place in the cab of the steam locomotive before the inspected boiler is put into service. This FRA Form No. 1 will not be required for the first 31 service days following an annual inspection and the posting of an FRA Form No. 3. (See appendix B of this part.)
§ 230.20 -- Alteration and repair report for steam locomotive boilers.
(a) Alterations. When an alteration is made to a steam locomotive boiler, the steam locomotive owner and/or operator shall file an alteration report (FRA Form No. 19), detailing the changes to the locomotive with the FRA Regional Administrator within 30 days from the date the work was completed. This form shall be attached to, and maintained with, the FRA Form No. 4 until such time as a new FRA Form No. 4 reflecting the alteration is submitted to the Regional Administrator. Alteration reports shall be filed and maintained for the life of the boiler. (See appendix B of this part.)

(b) Welded and riveted repairs to unstayed portions of the boiler. Whenever welded or riveted repairs are performed on unstayed portions of a steam locomotive boiler, the steam locomotive owner and/or operator shall file with the FRA Regional Administrator, within 30 days from the time the work was completed, a repair report, FRA Form No. 19, that details the work done to the steam locomotive. Repair reports shall be filed and maintained for the life of the boiler. (See appendix B of this part.)

(c) Welded and riveted repairs to stayed portions of the boiler. Whenever welded or riveted repairs are performed on stayed portions of a steam locomotive boiler, the steam locomotive owner and/or operator shall complete a repair report (FRA Form No. 19), detailing the work done. Repair reports shall be maintained for the life of the boiler. (See appendix C of this part.)

§ 230.21 -- Steam locomotive number change.
When a steam locomotive number is changed, the steam locomotive owner and/or operator must reflect the change in the upper right-hand corner of all documentation related to the steam locomotive by showing the old and new numbers:
Old No. 000
New No. XXX.

§ 230.22 -- Accident reports.
In the case of an accident due to failure, from any cause, of a steam locomotive boiler or any part or appurtenance thereof, resulting in serious injury or death to one or more persons, the railroad on whose line the accident occurred shall immediately make a telephone report of the accident by calling the National Response Center (toll free) at Area Code 800-424-0201. The report shall state the nature of the accident, the number of persons killed or seriously injured, the place at which it occurred, and the location where the steam locomotive may be inspected. Confirmation of this report shall be immediately mailed to the Associate Administrator for Safety, Federal Railroad Administration, Washington, DC 20590, and contain a detailed report of the accident, including, to the extent known, the causes and a complete list of the casualties.
Subpart B--Boilers and Appurtenances

§ 230.23 -- Responsibility for general construction and safe working pressure.
The steam locomotive owner and operator are responsible for the general design and construction of the steam locomotive boilers under their control. The steam locomotive owner shall establish the safe working pressure for each steam locomotive boiler, after giving full consideration to the general design, workmanship, age, and overall condition of the complete boiler unit. The condition of the boiler unit shall be determined by, among other factors, the minimum thickness of the shell plates, the lowest tensile strength of the plates, the efficiency of the longitudinal joint, the inside diameter of the course, and the maximum allowable stress value allowed. The steam locomotive operator shall not place the steam locomotive in service before ensuring that the steam locomotive's safe working pressure has been established.

Allowable Stress

§ 230.24 -- Maximum allowable stress.
(a) Maximum allowable stress value. The maximum allowable stress value on any component of a steam locomotive boiler shall not exceed 1/4 of the ultimate tensile strength of its material.
(b) Safety factor. When it is necessary to use the code of original construction in boiler calculations, the safety factor value shall not be less than 4.

§ 230.25 -- Maximum allowable stress on stays and braces.
The maximum allowable stress per square inch of net cross sectional area on fire box and combustion chamber stays shall be 7,500 psi. The maximum allowable stress per square inch of net cross sectional area on round, rectangular, or gusset braces shall be 9,000 psi.

Strength of Materials

§ 230.26 -- Tensile strength of shell plates.
When the tensile strength of steel or wrought-iron shell plates is not known, it shall be taken at 50,000 psi for steel and 45,000 psi for wrought iron.

§ 230.27 -- Maximum shearing strength of rivets.
The maximum shearing strength of rivets per square inch of cross sectional area shall be taken as follows:

<table>
<thead>
<tr>
<th>Rivets</th>
<th>Pounds per square inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Rivets in Single Shear</td>
<td>38,000</td>
</tr>
<tr>
<td>Iron Rivets in Double Shear</td>
<td>76,000</td>
</tr>
<tr>
<td>Steel Rivets in Single Shear</td>
<td>44,000</td>
</tr>
<tr>
<td>Steel Rivets in Double Shear</td>
<td>88,000</td>
</tr>
</tbody>
</table>
§ 230.28 -- Higher shearing strength of rivets.

A higher shearing strength may be used for rivets when it can be shown through testing that the rivet material used is of such quality as to justify a higher allowable shearing strength.

Inspection and Repair

§ 230.29 -- Inspection and repair.

(a) Responsibility. The steam locomotive owner and/or operator shall inspect and repair all steam locomotive boilers and appurtenances under their control. They shall immediately remove from service any boiler that has developed cracks in the barrel. The steam locomotive owner and/or operator shall also remove the boiler from service whenever either of them, or the FRA inspector, considers it necessary due to other defects.

(b) Repair standards.

(1) All defects disclosed by inspection shall be repaired in accordance with accepted industry standards—which may include established railroad practices, or NBIC or API established standards—before the steam locomotive is returned to service. The steam locomotive owner and/or operator shall not return the steam locomotive boiler or appurtenances to service unless they are in good condition and safe and suitable for service.

(2) Any welding to unstayed portions of the boiler made pursuant to § 230.33 shall be made in accordance with an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall not return the steam locomotive boiler or appurtenances to service unless they are in good condition and safe and suitable for service.

§ 230.30 -- Lap-joint seam boilers.

Every boiler having lap-joint longitudinal seams without reinforcing plates shall have sufficient lagging, jacketing, flues, and tubes removed at every annual inspection so that an inspection of the entire joint, inside and out, can be made, taking special care to detect grooving or cracks at the edges of the seams.

§ 230.31 -- Flues to be removed.

(a) Inspection of the boiler interior. During the 1472 service day inspection, the steam locomotive owner and/or operator shall remove all flues of steam locomotive boilers in service, except as provided in paragraph (b) of this section, for the purpose of inspecting the entire interior of the boiler and its bracing. After removing the flues, the steam locomotive owner and/or operator shall enter the boiler to remove scale from the interior and thoroughly clean and inspect it.

(b) NDE testing. If the boiler can be thoroughly cleaned and inspected without removing the superheater flues, and it can be shown through appropriate NDE testing methods that they are safe and suitable for service, their removal may not be required at this time. Their removal may be required, however, if the FRA inspector, or the steam locomotive owner and/or operator, considers it necessary due to identifiable safety concerns.
§ 230.32 -- Time and method of inspection.
(a) *Time of inspection.* The entire boiler shall completely be inspected at the 1472 service day inspection. The jacket, lagging and any other components interfering with the provision of inspection access shall be removed at this time. Those portions of the boiler that are exposed and able to be inspected as required by the daily, service day, annual and fifth annual inspections shall be inspected at those times. The interior of the boiler also shall be inspected at each annual inspection, after the completion of any hydrostatic test above MAWP, and whenever a sufficient number of flues are removed to allow examination. The jacket, lagging and any other components shall also be removed to provide inspection access whenever the FRA inspector, or the steam locomotive owner and/or operator, considers it necessary due to identifiable safety concerns.

(b) *Method of inspection.*
   (1) *Entire boiler.* During the 1472 service day inspection, the entire boiler shall be examined for cracks, pitting, grooving, or indications of overheating and for damage where mud has collected, or heavy scale formed. The edges of plates, all laps, seams, and points where cracks and defects are likely to develop, shall be thoroughly inspected. Rivets shall be inspected for corrosion and looseness.
   (2) *Boiler interior.* When inspecting the boiler interior, it must be seen that braces and stays are taut, that pins are properly secured in place, and that each is in condition to support its proportion of the load. Washout plugs shall be removed for access and visual inspection of the water side of the firebox sheets. Washout plug threads, sleeves and threaded openings shall be examined at this time.
   (3) *Boiler exterior.* A thorough inspection shall be made of the entire exterior of the boiler while under hydrostatic pressure.

§ 230.33 -- Welded repairs and alterations.
(a) *Unstayed portions of the boiler containing alloy steel or carbon steel with a carbon content over 0.25 percent.* Prior to welding on unstayed portions of the boiler, the steam locomotive owner and/or operator shall submit a written request for approval to the FRA Regional Administrator. If the approval is granted, the steam locomotive owner and/or operator shall perform any welding to unstayed portions of the boiler in accordance with an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.

(b) *Unstayed portions of the boiler containing carbon steel not exceeding 0.25 percent carbon.* The steam locomotive owner and/or operator shall perform any welding to unstayed portions of the boiler in accordance with an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.

(c) *Wastage.* The steam locomotive owner and/or operator shall submit a written request for approval to the FRA Regional Administrator before performing weld build up on wasted areas of unstayed surfaces of the boiler that exceed a total of 100 square inches or the smaller of 25 percent of minimum required wall thickness or 1/2 inch. Wasted sheets shall not be repaired by weld build up if the wasted sheet has been reduced to less than 60 percent of the minimum required thickness as required by this part.

(d) *Flush patches.* The steam locomotive owner and/or operator shall submit a written request for approval to the FRA Regional Administrator for the installation of flush patches of any size on unstayed portions of the boiler.
(e) **Stayed portions of the boiler.** The steam locomotive owner and/or operator shall perform welded repairs or alterations on stayed portions of the boiler in accordance with established railroad practices, or an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy the reporting requirements in § 230.20 at this time.

§ 230.34 -- Riveted repairs and alterations.
(a) **Alterations to unstayed portions of the boiler.** Prior to making riveted alterations on unstayed portions of the boiler, the steam locomotive owner and/or operator shall submit a written request for approval to the FRA Regional Administrator. If approval is granted, the steam locomotive owner and/or operator shall perform any riveting to unstayed portions of the boiler in accordance with established railroad practices or an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.
(b) **Repairs to unstayed portions of the boiler.** The steam locomotive owner and/or operator shall perform any riveted repairs to unstayed portions of the boiler in accordance with established railroad practices, or an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.
(c) **Repairs to stayed portions of the boiler.** The steam locomotive owner and/or operator shall perform riveted repairs or alterations on stayed portions of the boiler in accordance with established railroad practices or an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.

**Pressure Testing of Boilers**

§ 230.35 -- Pressure testing.

The temperature of the steam locomotive boiler shall be raised to at least 70 deg. F any time hydrostatic pressure is applied to the boiler.

§ 230.36 -- Hydrostatic testing of boilers.
(a) **Time of test.** The locomotive owner and/or operator shall hydrostatically test every boiler at the following times:

1. During the 1472 service day inspection, and at every annual inspection thereafter;
2. After making any alteration to the boiler;
3. After installing a flush patch on an unstayed portion of the boiler; and
4. After any riveting on an unstayed portion of the boiler.
(b) **Method of testing.** The metal temperature of the boiler shall be between 70 degrees Fahrenheit and 120 degrees Fahrenheit each time it is subjected to any hydrostatic pressure. Hydrostatic testing required by these rules shall be conducted at 25 percent above the MAWP.
(c) **Internal inspection.** An internal inspection of the boiler shall be conducted following any hydrostatic test where the pressure exceeds MAWP.
§ 230.37 -- Steam test following repairs or alterations.

Upon completion of any repair or alteration, the locomotive owner and/or operator shall conduct a steam test of the boiler with steam pressure raised to between 95 percent and 100 percent of the MAWP. At this time, the boiler shall be inspected to ensure that it is in a safe and suitable condition for service.

Staybolts

§ 230.38 -- Telltale holes.

(a) *Staybolts less than 8 inches long.* All staybolts shorter than 8 inches, except flexible bolts, shall have telltale holes 3/16 inch to 7/32 inch diameter and at least 1 1/4 inches deep in the outer end.

(b) *Reduced body staybolts.* On reduced body staybolts, the telltale hole shall extend beyond the fillet and into the reduced section of the staybolt. Staybolts may have through telltale holes.

(c) *Telltale holes kept open.* All telltale holes, except as provided for in § 230.41, must be kept open at all times.

§ 230.39 -- Broken staybolts.

(a) *Maximum allowable number of broken staybolts.* No boiler shall be allowed to remain in service with two broken staybolts located within 24 inches of each other, as measured inside the firebox or combustion chamber on a straight line. No boiler shall be allowed to remain in service with more than 4 broken staybolts inside the entire firebox and combustion chamber, combined.

(b) *Staybolt replacement.* Broken staybolts must be replaced during the 31 service day inspection, if detected at that time. Broken staybolts detected in between 31 service day inspections must be replaced no later than 30 calendar days from the time of detection. When staybolts 8 inches or less in length are replaced, they shall be replaced with bolts that have telltale holes 3/16 inch to 7/32 inch in diameter and at least 1 1/4 inches deep at each end, or that have telltale holes 3/16 inch to 7/32 inch in diameter their entire length. At the time of replacement of broken staybolts, adjacent staybolts shall be inspected.

(c) *Assessment of broken staybolts.* Telltale holes leaking, plugged, or missing shall be counted as broken staybolts.

(d) *Prohibited methods of closing telltale holes.* Welding, forging, or riveting broken staybolt ends is prohibited as a method of closing telltale holes.

§ 230.40 -- Time and method of staybolt testing.

(a) *Time of hammer testing.*

(1) General. All staybolts shall be hammer tested at every 31 service day inspection, except as provided in paragraph (a)(2) of this section. All staybolts also shall be hammer tested under hydrostatic pressure any time hydrostatic pressure above the MAWP specified on the boiler specification form (FRA Form No. 4), is applied to the boiler. (See appendix B of this part.)

(2) Exception for inaccessible staybolts. The removal of brickwork or grate bearers for the purpose of hammer testing staybolts during each 31 service day inspection will not be required if the staybolts behind these structural impediments have a telltale hole 3/16
inch to 7/32 inch in diameter their entire length. Whenever the brickwork or grate bearers are removed for any other reason, however, the bolts shall be inspected at that time.

(b) **Method of hammer testing.** If staybolts are tested while the boiler contains water, the hydrostatic pressure must be not less than 95 percent of the MAWP. The steam locomotive owner and/or operator shall tap each bolt with a hammer and determine broken bolts from the sound or the vibration of the sheet. Whenever staybolts are tested while the boiler is not under pressure, such as during the 31 service day inspection, the staybolt test must be made with all the water drained from the boiler.

§ 230.41 -- Flexible staybolts with caps.
(a) **General.** Flexible staybolts with caps shall have their caps removed during every 5th annual inspection for the purpose of inspecting the bolts for breakage, except as provided in paragraph (b) of this section.
(b) **Drilled flexible staybolts.** For flexible staybolts that have telltale holes between 3/16 inch and 7/32 inch in diameter, and which extend the entire length of the bolt and into the head not less than one third of the diameter of the head, the steam locomotive owner and/or operator need not remove the staybolt caps if it can be established, by an electrical or other suitable method, that the telltale holes are open their entire length. Any leakage from these telltale holes during the hydrostatic test indicates that the bolt is broken and must be replaced. Before the steam locomotive is placed in service, the inner ends of all telltale holes shall be closed with a fireproof porous material that will keep the telltale holes free of foreign matter and permit steam or water to exit the telltale hole when the bolt is broken or fractured.
(c) **Recordkeeping.** The removal of flexible staybolt caps and other tests shall be reported on FRA Form No. 3. (See appendix B of this part.)
(d) **Testing at request of FRA inspector.** Staybolt caps also shall be removed, or any of the tests in this section made, whenever the FRA inspector or the steam locomotive owner and/or operator considers it necessary due to identifiable safety concerns about the condition of staybolts, staybolt caps or staybolt sleeves.

Steam Gauges

§ 230.42 -- Location of gauges.
Every boiler shall have at least one steam gauge which will correctly indicate the working pressure. The gauge shall be positioned so that it will be kept reasonably cool and can conveniently be read by the engine crew.

§ 230.43 -- Gauge siphon.
The steam gauge supply pipe shall have a siphon on it of ample capacity to prevent steam from entering the gauge. The supply pipe shall directly enter the boiler and be maintained steam tight. The supply pipe and its connections shall be cleaned each time the gauge is tested.

§ 230.44 -- Time of testing.
Steam gauges shall be tested prior to being installed or being reapplied, during the 92 service day inspection, and whenever any irregularity is reported.
§ 230.45 -- Method of testing.
Steam gauges shall be compared with an accurate test gauge or dead weight tester. While under test load at the MAWP of the boiler to which the gauge will be applied, the gauge shall be set to read that pressure as accurately as the physical limitations of the gauge will allow. Under test the gauge shall read within the manufacturer's tolerance at all points on the gauge up to 25 percent above the allowed pressure. If the manufacturer's tolerance is not known, the gauge must read within 2 percent full scale accuracy at all points on the gauge up to 25 percent above allowed pressure.

§ 230.46 -- Badge plates.
A metal badge plate showing the allowed steam pressure shall be attached to the boiler backhead in the cab. If boiler backhead is lagged, the lagging and jacket shall be cut away so that the plate can be seen.

§ 230.47 -- Boiler number.
(a) Generally. The builder's number of the boiler, if known, shall be stamped on the steam dome or manhole flange. If the builder's number cannot be obtained, an assigned number, which shall be used in making out specification cards, shall be stamped on the steam dome or manhole flange. 
(b) Numbers after January 10, 1912. Numbers which are stamped after January 10, 1912 shall be located on the front side of the steam dome or manhole flange at the upper edge of the vertical surface, oriented in a horizontal manner, and have figures at least 3/8 inch high.
(c) Name of manufacturer or owner. The number shall be preceded by the name of the manufacturer if the original number is known or the name of the steam locomotive owner if a new number is assigned.

Safety Relief Valves

§ 230.48 -- Number and capacity.
(a) Number and capacity. Every boiler shall be equipped with at least two safety relief valves, suitable for the service intended, that are capable of preventing an accumulation of pressure greater than 6 percent above the MAWP under any conditions of service. An FRA inspector may require verification of sufficient safety valve relieving capacity.
(b) Determination of capacity. Safety relief valve capacity may be determined by making an accumulation test with the fire in good, bright condition and all steam outlets closed. Additional safety relief valve capacity shall be provided if the safety relief valves allow an excess pressure of more than 6 percent above the MAWP during this test.

§ 230.49 -- Setting of safety relief valves.
(a) Qualifications of individual who adjusts. Safety relief valves shall be set and adjusted by a competent person who is thoroughly familiar with the construction and operation of the valve being set.
(b) Opening pressures. At least one safety relief valve shall be set to open at a pressure not exceeding the MAWP. Safety relief valves shall be set to open at pressures not exceeding 6 psi above the MAWP.
Setting procedures. When setting safety relief valves, two steam gauges shall be used, one of which must be so located that it will be in full view of the persons engaged in setting such valves; and if the pressure indicated by the gauges varies more than 3 psi they shall be removed from the boiler, tested, and corrected before the safety relief valves are set. Gauges shall in all cases be tested immediately before the safety relief valves are set or any change made in the setting. When setting safety relief valves, the water level shall not be higher than 3/4 of the length of the visible water glass, as measured from the bottom of the glass.

(d) Labeling of lowest set pressure. The set pressure of the lowest safety relief valve shall be indicated on a tag or label attached to the steam gauge so that it may be clearly read while observing the steam gauge.

§ 230.50 -- Time of testing.
All safety relief valves shall be tested, and adjusted if necessary, under steam at every 92 service day inspection, and also whenever any irregularity is reported.

Water Glasses and Gauge Cocks

§ 230.51 -- Number and location.
Every boiler shall be equipped with at least two water glasses. The lowest reading of the water glasses shall not be less than 3 inches above the highest part of the crown sheet. If gauge cocks are used, the reading of the lowest gauge cock shall not be less than 3 inches above the highest part of the crown sheet.

§ 230.52 -- Water glass valves.
All water glasses shall be equipped with no more than two valves capable of isolating the water glass from the boiler. They shall also be equipped with a drain valve capable of evacuating the glass when it is so isolated.

§ 230.53 -- Time of cleaning.
The spindles of all water glass valves and of all gauge cocks shall be removed and valves and cocks thoroughly cleaned of scale and sediment at every 31 service day inspection, and when testing indicates that the apparatus may be malfunctioning. In addition, the top and bottom passages of the water column shall be cleaned and inspected at each annual inspection.

§ 230.54 -- Testing and maintenance.
(a) Testing. All water glasses must be blown out, all gauge cocks must be tested, and all passages verified to be open at the beginning of each day the locomotive is used, and as often as necessary to ensure proper functioning.
(b) Maintenance. Gauge cocks, water column drain valves, and water glass valves must be maintained in such condition that they can easily be opened and closed by hand, without the aid of a wrench or other tool.

§ 230.55 -- Tubular type water and lubricator glasses and shields.
(a) Water glasses. Tubular type water glasses shall be renewed at each 92 service day inspection.
(b) **Shields.** All tubular water glasses and lubricator glasses must be equipped with a safe and suitable shield which will prevent the glass from flying in case of breakage. This shield shall be properly maintained.

(c) **Location and maintenance.** Water glasses and water glass shields shall be so located, constructed, and maintained that the engine crew can at all times have an unobstructed view of the water in the glass from their proper positions in the cab.

§ 230.56 -- **Water glass lamps.**

All water glasses must be supplied with a suitable lamp properly located to enable the engine crew to easily see the water in the glass.

**Injectors, Feedwater Pumps, and Flue Plugs**

§ 230.57 -- **Injectors and feedwater pumps.**

(a) **Water delivery systems required.** Each steam locomotive must be equipped with at least two means of delivering water to the boiler, at least one of which is a live steam injector.

(b) **Maintenance and testing.** Injectors and feedwater pumps must be kept in good condition, free from scale, and must be tested at the beginning of each day the locomotive is used, and as often as conditions require, to ensure that they are delivering water to the boiler. Boiler checks, delivery pipes, feed water pipes, tank hose and tank valves must be kept in good condition, free from leaks and from foreign substances that would obstruct the flow of water.

(c) **Bracing.** Injectors, feedwater pumps, and all associated piping shall be securely braced so as to minimize vibration.

§ 230.58 -- **Flue plugs.**

(a) **When plugging is permitted.** Flues greater than 2 1/4 inches in outside diameter (OD) shall not be plugged. Flues 2 1/4 inches in outside diameter (OD) or smaller may be plugged following failure, provided only one flue is plugged at any one time. Plugs must be removed and proper repairs made no later than 30 days from the time the plug is applied.

(b) **Method of plugging.** When used, flue plugs must be made of steel. The flue must be plugged at both ends. Plugs must be tied together by means of a steel rod not less than 5/8 inch in diameter.

**Fusible Plugs**

§ 230.59 -- **Fusible plugs.**

If boilers are equipped with fusible plugs, the plugs shall be removed and cleaned of scale each time the boiler is washed but not less frequently than during every 31 service day inspection. Their removal shall be noted on the FRA Form No. 1 or FRA Form No. 3. (See appendix B of this part.)
Washing Boilers

§ 230.60 -- Time of washing.
(a) Frequency of washing. All boilers shall thoroughly be washed as often as the water conditions require, but not less frequently than at each 31 service day inspection. The date of the boiler wash shall be noted on the FRA Form No. 1 or FRA Form No. 3. (See appendix B of this part.)
(b) Plug removal. All washout plugs, arch tube plugs, thermic siphon plugs, circulator plugs and water bar plugs must be removed whenever locomotive boilers are washed.
(c) Plug maintenance. All washout plugs, washout plug sleeves and threaded openings shall be maintained in a safe and suitable condition for service and shall be examined for defects each time the plugs are removed.
(d) Fusible plugs cleaned. Fusible plugs shall be cleaned in accordance with § 230.59.

§ 230.61 -- Arch tubes, water bar tubes, circulators and thermic siphons.
(a) Frequency of cleaning. Each time the boiler is washed, arch tubes and water bar tubes shall thoroughly be cleaned mechanically, washed, and inspected. Circulators and thermic siphons shall thoroughly be cleaned, washed and inspected.
(b) Defects. Arch tubes and water bar tubes found blistered, bulged, or otherwise defective shall be renewed. Circulators and thermic siphons found blistered, bulged or otherwise defective shall be either repaired or renewed.
(c) Method of examination. Arch tubes, water bar tubes and circulators shall be examined using an appropriate NDE method that accurately measures wall thickness at each annual inspection. All arch brick shall be removed for this inspection. If any are found with wall thickness reduced below that required to render them safe and suitable for the service intended at the MAWP specified on the boiler specification FRA Form No. 4, they must be replaced or repaired. (See appendix B of this part.)

Steam Pipes

§ 230.62 -- Dry pipe.
Dry pipes subject to pressure shall be examined at each annual inspection to measure wall thickness. Dry pipes with wall thickness reduced below that required to render the pipe suitable for the service intended at the MAWP must be replaced or repaired.

§ 230.63 -- Smoke box, steam pipes and pressure parts.
The smoke box, steam pipes and pressure parts shall be inspected at each annual inspection, or any other time that conditions warrant. The individual conducting the inspection must enter the smoke box to conduct the inspection, looking for signs of leaks from any of the pressure parts therein and examining all draft appliances.

Steam Leaks

§ 230.64 -- Leaks under lagging.
The steam locomotive owner and/or operator shall take out of service at once any boiler that has developed a leak under the lagging due to a crack in the shell, or to any
other condition which may reduce safety. Pursuant to § 230.29, the boiler must be repaired before being returned to service.

§ 230.65 -- Steam blocking view of engine crew.

The steam locomotive owner and/or operator shall keep the boiler, and its piping and appurtenances, in such repair that they do not emit steam in a manner that obscures the engine crew's vision.

Subpart C--Steam Locomotives and Tenders

§ 230.66 -- Design, construction, and maintenance.

The steam locomotive owner and operator are responsible for the general design, construction and maintenance of the steam locomotives and tenders under their control.

§ 230.67 -- Responsibility for inspection and repairs.

The steam locomotive owner and/or operator shall inspect and repair all steam locomotives and tenders under their control. All defects disclosed by any inspection shall be repaired in accordance with accepted industry standards, which may include established railroad practices, before the steam locomotive or tender is returned to service. The steam locomotive owner and/or operator shall not return the steam locomotive or tender to service unless they are in good condition and safe and suitable for service.

Speed Indicators

§ 230.68 -- Speed indicators.

Steam locomotives that operate at speeds in excess of 20 miles per hour over the general system of railroad transportation shall be equipped with speed indicators. Where equipped, speed indicators shall be maintained to ensure accurate functioning.

Ash Pans

§ 230.69 -- Ash pans.

Ash pans shall be securely supported from mud-rings or frames with no part less than 2 1/2 inches above the rail. Their operating mechanism shall be so arranged that they may be safely operated and securely closed.

Brake and Signal Equipment

§ 230.70 -- Safe condition.

(a) Pre-departure inspection. At the beginning of each day the locomotive is used, the steam locomotive operator shall ensure that:

   (1) The brakes on the steam locomotive and tender are in safe and suitable condition for service;
   
   (2) The air compressor or compressors are in condition to provide an ample supply of air for the locomotive service intended;
   
   (3) The devices for regulating all pressures are properly performing their functions;
(4) The brake valves work properly in all positions; and
(5) The water has been drained from the air-brake system.

(b) **Brake pipe valve required.** Each steam locomotive shall have a brake pipe valve attached to the front of the tender, the rear of the back cab wall, or adjacent to the exit of a vestibuled cab. The words "Emergency Brake Valve" shall be clearly displayed near the valve.

§ 230.71 -- Orifice testing of compressors.

(a) **Frequency of testing.** The compressor or compressors shall be tested for capacity by orifice test as often as conditions may require, but not less frequently than once every 92 service days.

(1) **Orifice testing criteria.** (1) Compressors in common use, as listed in the following table, shall have orifice test criteria as follows:

<table>
<thead>
<tr>
<th>MAKE</th>
<th>COMPRESSOR SIZE</th>
<th>SINGLE STROKES</th>
<th>DIAMETER (INCHES)</th>
<th>AIR PRESS. (IN LBS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westinghouse</td>
<td>9 1/2</td>
<td>120</td>
<td>11/64</td>
<td>60</td>
</tr>
<tr>
<td>Westinghouse</td>
<td>11</td>
<td>100</td>
<td>3/16</td>
<td>60</td>
</tr>
<tr>
<td>Westinghouse</td>
<td>150 CFM 8 1/2 CC</td>
<td>100</td>
<td>9/32</td>
<td>60</td>
</tr>
<tr>
<td>Westinghouse</td>
<td>120 CFM 8 1/2</td>
<td>100</td>
<td>15/64</td>
<td>60</td>
</tr>
<tr>
<td>New York</td>
<td>2a</td>
<td>120</td>
<td>5/32</td>
<td>60</td>
</tr>
<tr>
<td>New York</td>
<td>6a</td>
<td>100</td>
<td>13/64</td>
<td>60</td>
</tr>
<tr>
<td>New York</td>
<td>5b</td>
<td>100</td>
<td>15/64</td>
<td>60</td>
</tr>
</tbody>
</table>

Note: This table shall be used for altitudes to and including 1,000 feet. For altitudes over 1,000 feet the speed of compressor may be increased 5 single strokes per minute for each 1,000 feet increase in altitude.

(2) For compressors not listed in the table in paragraph (b)(1) of this section, the air pressure to be maintained shall be no less than 80 percent of the manufacturer's rated capacity for the compressor.

§ 230.72 -- Testing main reservoirs.

(a) **Hammer and hydrostatic testing.** Except as described in paragraphs (b) through (d) of this section, every main reservoir, except those cast integrally with the frame, shall be hammer and hydrostatically tested during each annual inspection. The reservoir shall be hammer tested while empty and with no pressure applied. If no defective areas are detected, a hydrostatic test of MAWP shall be applied.

(b) **Drilling of main reservoirs.** (1) Only welded main reservoir originally constructed to withstand at least five times the MAWP may be drilled over its entire surface with telltale holes that are 3/16 of an inch in diameter. The holes shall be spaced not more than 12 inches apart, measured both longitudinally and circumferentially, and drilled from the outer surface to an extreme depth determined by the following formula:

\[ D = \frac{0.6PR}{S.6P} \]

Where:
D = Extreme depth of telltale holes in inches but in no case less than one-sixteenth inch;

P = certified working pressure in psi;

S = 1/5 of the minimum specified tensile strength of the material in psi; and

R = inside radius of the reservoir in inches.

(2) One row of holes shall be drilled lengthwise of the reservoir on a line intersecting the drain opening. When main reservoirs are drilled as described in paragraph (b)(1) of this section, the hydrostatic and hammer tests described in paragraph (a) of this section are not required during the annual inspection. Whenever any telltale hole shall have penetrated the interior of any reservoir, the reservoir shall be permanently withdrawn from service.

(c) Welded main reservoirs without longitudinal lap seams. For welded main reservoirs that do not have longitudinal lap seams, an appropriate NDE method that can measure the wall thickness of the reservoir may be used instead of the hammer test and hydrostatic test required in paragraph (a) of this section. The spacing of the sampling points for wall thickness shall not be greater than 12 inches longitudinally and circumferentially. The reservoir shall permanently be withdrawn from service where the NDE testing reveals wall thickness less than the value determined by the following formula:

\[ t = \frac{PR}{(S \cdot 6P)} \]

Where:

\( t \) = Minimum value for wall thickness;

P = Certified working pressure in psi;

S = 1/5 of the minimum specified tensile strength of the material in psi, or 10,000 psi if the tensile strength is unknown; and

R = Inside radius of the reservoir in inches.

(d) Welded or riveted longitudinal lap seam main reservoirs. (1) For welded or riveted longitudinal lap seam main reservoirs, an appropriate NDE method that can measure wall thickness of the reservoir shall be used instead of, or in addition to, the hammer test and hydrostatic test. The spacing of the sampling points for wall thickness shall not be greater than 12 inches longitudinally and circumferentially. Particular care shall be taken to measure along the longitudinal seam on both plates at an interval of no more than 6 inches longitudinally. The reservoir shall be withdrawn permanently from service where NDE testing reveals wall thickness less than the value determined by the following formula:

\[ t = \frac{PR}{(0.5S \cdot 0.6P)} \]

Where:

\( t \) = Minimum value for wall thickness;
P = Certified working pressure in psi;

S = 1/5 of the minimum specified tensile strength of the material in psi, or 10,000 psi if the tensile strength of steel is unknown; and

R = Inside radius of the reservoir in inches.

(2) Repairs of reservoirs with reduced wall thickness are prohibited.

§ 230.73 -- Air gauges.
(a) Location. Air gauges shall be so located that they may be conveniently read by the engineer from his or her usual position in the cab. No air gauge may be more than 3 psi in error.
(b) Frequency of testing. Air gauges shall be tested prior to reapplication following removal, as well as during the 92 service day inspection and whenever any irregularity is reported.
(c) Method of testing. Air gauges shall be tested using an accurate test gauge or dead weight tester designed for this purpose.

§ 230.74 -- Time of cleaning.
All valves in the air brake system, including related dirt collectors and filters, shall be cleaned and tested in accordance with accepted brake equipment manufacturer's specifications, or as often as conditions require to maintain them in a safe and suitable condition for service, but not less frequently than after 368 service days or during the second annual inspection, whichever occurs first.

§ 230.75 -- Stenciling dates of tests and cleaning.
The date of testing and cleaning and the initials of the shop or station at which the work is done, shall legibly be stenciled in a conspicuous place on the tested parts or placed on a card displayed under a transparent cover in the cab of the steam locomotive.

§ 230.76 -- Piston travel.
(a) Minimum piston travel. The minimum piston travel shall be sufficient to provide proper brake shoe clearance when the brakes are released.
(b) Maximum piston travel. The maximum piston travel when steam locomotive is standing shall be as follows:

<table>
<thead>
<tr>
<th>Type of wheel brake</th>
<th>Maximum piston travel (in inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cam Type Driving Wheel Brake</td>
<td>3 1/2</td>
</tr>
<tr>
<td>Other forms of Driving Wheel Brake</td>
<td>6</td>
</tr>
<tr>
<td>Engine Truck Brake</td>
<td>8</td>
</tr>
<tr>
<td>Tender Brake</td>
<td>9</td>
</tr>
</tbody>
</table>
§ 230.77 -- Foundation brake gear.
(a) Maintenance. Foundation brake gear shall be maintained in a safe and suitable condition for service. Levers, rods, brake beams, hangers, and pins shall be of ample strength, and shall not be fouled in any way which will affect the proper operation of the brake. All pins shall be properly secured in place with cotter pine, split keys, or nuts. Brake shoes must be properly applied and kept approximately in line with the tread of the wheel.
(b) Distance above the rails. No part of the foundation brake gear of the steam locomotive or tender shall be less than 2 1/2 inches above the rails.

§ 230.78 -- Leakage.
(a) Main reservoirs and related piping. Leakage from main reservoir and related piping shall be tested at every 92 service day inspection and shall not exceed an average of 3 psi per minute in a test of 3 minutes duration that is made after the pressure has been reduced to 60 percent of the maximum operating pressure.
(b) Brake cylinders. Leakage from brake cylinders shall be tested at every 92 service day inspection. With a full service application from maximum brake pipe pressure, and with communication to the brake cylinders closed, the brakes on the steam locomotive and tender must remain applied for a minimum of 5 minutes.
(c) Brake pipes. Steam locomotive brake pipe leakage shall be tested at the beginning of each day the locomotive is used, and shall not exceed 5 psi per minute.

§ 230.79 -- Train signal system.
Where utilized, the train signal system, or any other form of on-board communication, shall be tested and known to be in safe and suitable condition for service at the beginning of each day the locomotive is used.

Cabs, Warning Signals, Sanders and Lights

§ 230.80 -- Cabs.
(a) General provisions. Cabs shall be securely attached or braced and maintained in a safe and suitable condition for service. Cab windows of steam locomotives shall provide an undistorted view of the track and signals for the crew from their normal position in the cab. Cab floors shall be kept free of tripping or slipping hazards. The cab climate shall be maintained to provide an environment that does not unreasonably interfere with the engine crew's performance of their duties under ordinary conditions of service.
(b) Steam pipes. Steam pipes shall not be fastened to the cab. New construction or renewals made of iron or steel pipe greater than 1/8 inch NPS that are subject to boiler pressure in cabs shall have a minimum wall thickness equivalent to schedule 80 pipe, with properly rated valves and fittings. Live steam heating radiators must not be fastened to the cab. Exhaust steam radiators may be fastened to the cab.
(c) Oil-burning steam locomotives. If the cab is enclosed, oil burning steam locomotives that take air for combustion through the fire-door opening shall have a suitable conduit extending from the fire-door to the outside of the cab.
§ 230.81 -- Cab aprons.
(a) General provisions. Cab aprons shall be of proper length and width to ensure safety. Cab aprons shall be securely hinged, maintained in a safe and suitable condition for service, and roughened, or other provision made, to afford secure footing.
(b) Width of apron. The cab apron shall be of a sufficient width to prevent, when the drawbar is disconnected and the safety chains or the safety bars are taut, the apron from dropping between the steam locomotive and tender.

§ 230.82 -- Fire doors.
(a) General provisions. Each steam locomotive shall have a fire door which shall latch securely when closed and which shall be maintained in a safe and suitable condition for service. Fire doors on all oil-burning locomotives shall be latched securely with a pin or key.
(b) Mechanically operated fire doors. Mechanically operated fire doors shall be so constructed and maintained that they may be operated by pressure of the foot on a pedal, or other suitable appliance, located on the floor of the cab or tender at a suitable distance from the fire door, so that they may be conveniently operated by the person firing the steam locomotive.
(c) Hand-operated doors. Hand operated fire doors shall be so constructed and maintained that they may be conveniently operated by the person firing the steam locomotive.

§ 230.83 -- Cylinder cocks.
Each steam locomotive shall be equipped with cylinder cocks which can be operated from the cab of the steam locomotive. All cylinder cocks shall be maintained in a safe and suitable condition for service.

§ 230.84 -- Sanders.
Steam locomotives shall be equipped with operable sanders that deposit sand on the rail head in front of a set of driving wheels. Sanders shall be tested at the beginning of each day the locomotive is used.

§ 230.85 -- Audible warning device.
(a) General provisions. Each steam locomotive shall be equipped with an audible warning device that produces a minimum sound level of 96db(A) at 100 feet in front of the steam locomotive in its direction of travel. The device shall be arranged so that it may conveniently be operated by the engineer from his or her normal position in the cab.
(b) Method of measurement. Measurement of the sound level shall be made using a sound level meter conforming, at a minimum, to the requirements of ANSI S1.4-1971, Type 2, and set to an A-weighted slow response. While the steam locomotive is on level, tangent track, the microphone shall be positioned 4 feet above the ground at the center line of the track and shall be oriented with respect to the sound source in accordance with the microphone manufacturer's recommendations.

§ 230.86 -- Required illumination.
(a) General provisions. Each steam locomotive used between sunset and sunrise shall be equipped with an operable headlight that provides illumination sufficient for a steam
locomotive engineer in the cab to see, in a clear atmosphere, a dark object as large as a man of average size standing at least 800 feet ahead and in front of such headlight. If a steam locomotive is regularly required to run backward for any portion of its trip other than to pick up a detached portion of its train or to make terminal movements, it shall also be equipped on its rear end with an operable headlight that is capable of providing the illumination described in this paragraph (a).

(b) Dimming device. Such headlights shall be provided with a device whereby the light from same may be diminished in yards and at stations or when meeting trains.

(c) Where multiple locomotives utilized. When two or more locomotives are used in the same train, the leading locomotive only will be required to display a headlight.

§ 230.87 -- Cab lights.

Each steam locomotive shall have cab lights that sufficiently illuminate the control instruments, meters and gauges to allow the engine crew to make accurate readings from their usual and proper positions in the cab. These lights shall be so located and constructed that the light will shine only on those parts requiring illumination and does not interfere with the engine crew's vision of the track and signals. Each steam locomotive shall also have a conveniently located additional lamp that can be readily turned on and off by the persons operating the steam locomotive and that provides sufficient illumination to read train orders and timetables.

Throttle and Reversing Gear

§ 230.88 -- Throttles.

Throttles shall be maintained in safe and suitable condition for service, and efficient means shall be provided to hold the throttle lever in any desired position.

§ 230.89 -- Reverse gear.

(a) General provisions. Reverse gear, reverse levers, and quadrants shall be maintained in a safe and suitable condition for service. Reverse lever latch shall be so arranged that it can be easily disengaged, and provided with a spring which will keep it firmly seated in quadrant. Proper counterbalance shall be provided for the valve gear.

(b) Air-operated power reverse gear. Steam locomotives that are equipped with air operated power reverse gear shall be equipped with a connection whereby such gear may be operated by steam or by an auxiliary supply of air in case of failure of the main reservoir air pressure. The operating valve handle for such connection shall be conveniently located in the cab of the locomotive and shall be plainly marked. If an independent air reservoir is used as the source of the auxiliary supply for the reverse gear, it shall be provided with means to automatically prevent loss of pressure in event of failure of the main reservoir air pressure.

(c) Power reverse gear reservoirs. Power reverse gear reservoirs, if provided, must be equipped with the means to automatically prevent the loss of pressure in the event of a failure of main air pressure and have storage capacity for not less than one complete operating cycle of control equipment.
Draw Gear and Draft Systems

§ 230.90 -- Draw gear between steam locomotive and tender.
(a) Maintenance and testing. The draw gear between the steam locomotive and tender, together with the pins and fastenings, shall be maintained in safe and suitable condition for service. The pins and drawbar shall be removed and tested for defects using an appropriate NDE method at every annual inspection. Where visual inspection does not disclose any defects, an additional NDE testing method shall be employed. Suitable means for securing the drawbar pins in place shall be provided. Inverted drawbar pins shall be held in place by plate or stirrup.
(b) Safety bars and chains generally. One or more safety bar(s) or two or more safety chains shall be provided between the steam locomotive and tender. The combined strength of the safety chains or safety bar(s) and their fastenings shall be not less than 50 percent of the strength of the drawbar and its connections. These shall be maintained in safe and suitable condition for service, and inspected at the same time draw gear is inspected.
(c) Minimum length of safety chains or bars. Safety chains or safety bar(s) shall be of the minimum length consistent with the curvature of the railroad on which the steam locomotive is operated.
(d) Lost motion. Lost motion between steam locomotives and tenders not equipped with spring buffers shall be kept to a minimum and shall not exceed 1/2 inch.
(e) Spring buffers. When spring buffers are used between steam locomotives and tenders the spring shall be applied with not less than 3/4 inch compression, and shall at all times be under sufficient compression to keep the chafing faces in contact.

§ 230.91 -- Chafing irons.
Chafing irons that permit proper curving shall be securely attached to the steam locomotive and tender, and shall be maintained to permit lateral and vertical movement.

§ 230.92 -- Draw gear and draft systems.
Couplers, draft gear and attachments on steam locomotives and tenders shall be securely fastened, and maintained in safe and suitable condition for service.

Driving Gear

§ 230.93 -- Pistons and piston rods.
(a) Maintenance and testing. Pistons and piston rods shall be maintained in safe and suitable condition for service. Piston rods shall be inspected for cracks each time they are removed, and shall be renewed if found defective.
(b) Fasteners. Fasteners (keys, nuts, etc.) shall be kept tight and shall have some means to prevent them from loosening or falling out of place.

§ 230.94 -- Crossheads.
Crossheads shall be maintained in a safe and suitable condition for service, with not more than 1/4 inch vertical or 5/16 inch lateral clearance between crossheads and guides.
§ 230.95 -- Guides.
Guides shall be securely fastened and maintained in a safe and suitable condition for service.

§ 230.96 -- Main, side, and valve motion rods.
(a) **General.** Main, side or valve motion rods developing cracks or becoming otherwise defective shall be removed from service immediately and repaired or renewed.
(b) **Repairs.** Repairs, and welding of main, side or valve motion rods shall be made in accordance with an accepted national standard. The steam locomotive owner and/or operator shall submit a written request for approval to the FRA Regional Administrator prior to welding defective main rods, side rods, and valve gear components.
(c) **Bearings and bushings.** Bearings and bushings shall so fit the rods as to be in a safe and suitable condition for service, and means shall be provided to prevent bushings from turning in the rod. Straps shall fit and be securely bolted to rods. Floating bushings need not be provided with means to prevent bushings from turning.
(d) **Side motion of rods.** The total amount of side motion of each rod on its crank pin shall not exceed 1/4 inch.
(e) **Oil and grease cups.** Oil and grease cups shall be securely attached to rods, and grease cup plugs shall be equipped with a suitable fastening that will prevent them from being ejected.
(f) **Main rod bearings.** The bore of main rod bearings shall not exceed pin diameters more than 3/32 inch at front or back end. The total lost motion at both ends shall not exceed 5/32 inch.
(g) **Side rod bearings.** The bore of side rod bearings shall not exceed pin diameters more than 5/32 inch on main pin nor more than 3/16 inch on other pins.

§ 230.97 -- Crank pins.
(a) **General provisions.** Crank pins shall be securely applied. Securing the fit of a loose crank pin by shimming, prick punching, or welding is not permitted.
(b) **Maintenance.** Crank pin collars and collar fasteners shall be maintained in a safe and suitable condition for service.

Running Gear

§ 230.98 -- Driving, trailing, and engine truck axles.
(a) **Condemning defects.** Driving, trailing, and engine truck axles with any of the following defects shall be removed from service immediately and repaired (see appendix A of this part for inspection requirements):
   (1) Bent axle;
   (2) Cut journals that cannot be made to run cool without turning;
   (3) Transverse seams in iron or steel axles;
   (4) Seams in axles causing journals to run hot;
   (5) Axles that are unsafe on account of usage, accident or derailment;
   (6) Any axle worn 1/2 inch or more in diameter below the original/new journal diameter, except as provided in paragraph (a)(7) of this section;
(7) Any driving axles other than main driving axles with an original or new diameter greater than 6 inches that are worn 3/4 inch or more in diameter below the original/new diameter.

(b) *Journal diameter stamped.* For steam locomotives with plain bearings, the original/new journal diameter shall be stamped on one end of the axle no later than January 18, 2005.

§ 230.99 -- Tender truck axles.
The minimum diameters of axles for various axle loads shall be as follows:

<table>
<thead>
<tr>
<th>Axle load (in pounds)</th>
<th>Minimum diameter of journal (in inches)</th>
<th>Minimum diameter of wheel seat (in inches)</th>
<th>Minimum diameter of center (in inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50000</td>
<td>5 1/2</td>
<td>7 3/8</td>
<td>6 7/16</td>
</tr>
<tr>
<td>38000</td>
<td>5</td>
<td>6 3/4</td>
<td>5 7/8</td>
</tr>
<tr>
<td>31000</td>
<td>4 1/2</td>
<td>6 1/4</td>
<td>5 5/16</td>
</tr>
<tr>
<td>22000</td>
<td>3 3/4</td>
<td>5</td>
<td>4 3/8</td>
</tr>
<tr>
<td>15000</td>
<td>3 1/4</td>
<td>4 5/8</td>
<td>3 7/8</td>
</tr>
</tbody>
</table>

§ 230.100 -- Defects in tender truck axles and journals.
(a) *Tender truck axle condemning defects.* Tender truck axles with any of the following defects shall be removed from service immediately and repaired:
   1. Axles that are bent;
   2. Collars that are broken, cracked, or worn to 1/4 inch or less in thickness;
   3. Truck axles that are unsafe on account of usage, accident, or derailment;
   4. A fillet in the back shoulder that is worn out; or
   5. A gouge between the wheel seats that is more than 1/8 of an inch in depth.

(b) *Tender truck journal condemning defects.* Tender truck journals with any of the following defects shall be removed from service immediately and repaired:
   1. Cut journals that cannot be made to run cool without turning;
   2. Seams in axles causing journals to run hot;
   3. Overheating, as evidenced by pronounced blue black discoloration;
   4. Transverse seams in journals of iron or steel axles; or
   5. Journal surfaces having any of the following:
      i. A circumferential score;
      ii. Corrugation;
      iii. Pitting;
      iv. Rust;
      v. Etching.

§ 230.101 -- Steam locomotive driving journal boxes.
(a) *Driving journal boxes.* Driving journal boxes shall be maintained in a safe and suitable condition for service. Not more than one shim may be used between the box and bearing.

(b) *Broken bearings.* Broken bearings shall be renewed.

(c) *Loose bearings.* Loose bearings shall be repaired or renewed.
§ 230.102 -- Tender plain bearing journal boxes.

Plain bearing journal boxes with the following defects shall be removed from service immediately and repaired:

(a) A box that does not contain visible free oil;
(b) A box lid that is missing, broken, or open except to receive servicing;
(c) A box containing foreign matter, such as dirt, sand, or coal dust that can reasonably be expected to damage the bearing; or have a detrimental effect on the lubrication of the journal and bearing;
(d) A lubricating pad that:
   (1) Is missing;
   (2) Is not in contact with the journal;
   (3) Has a tear extending half the length or width of the pad, or more, except by design;
   (4) Shows evidence of having been scorched, burned, or glazed;
   (5) Contains decaying or deteriorated fabric that impairs proper lubrication of the pad;
   (6) Has an exposed center core (except by design); or
   (7) Has metal parts contacting the journal;
(e) A plain bearing that:
   (1) Is missing, cracked, broken;
   (2) Has a bearing liner loose;
   (3) Has a broken out piece; or
   (4) Has indications of having been overheated, as evidenced by:
      (i) Melted babbitt:
      (ii) Smoke from hot oil; or
      (iii) Journal surface damage; or
(f) A plain bearing wedge that:
   (1) Is missing, cracked or broken; or
   (2) Is not located in its design position.

§ 230.103 -- Tender roller bearing journal boxes.

Tender roller bearing journal boxes shall be maintained in a safe and suitable condition.

§ 230.104 -- Driving box shoes and wedges.

Driving box shoes and wedges shall be maintained in a safe and suitable condition for service.

§ 230.105 -- Lateral motion.

(a) Condemning limits. The total lateral motion or play between the hubs of the wheels and the boxes on any pair of wheels shall not exceed the following limits:

<table>
<thead>
<tr>
<th></th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine truck wheels (with swing centers)</td>
<td>1</td>
</tr>
<tr>
<td>Engine truck wheels (with rigid centers)</td>
<td>1 1/2</td>
</tr>
<tr>
<td>Trailing truck wheels</td>
<td>1</td>
</tr>
<tr>
<td>Driving wheels</td>
<td>3/4</td>
</tr>
</tbody>
</table>
(b) *Limits increased.* These limits may be increased on steam locomotives operating on track where the curvature exceeds 20 degrees when it can be shown that conditions require additional lateral motion.

(c) *Non-interference with other parts.* The lateral motion shall in all cases be kept within such limits that the driving wheels, rods, or crank pins will not interfere with other parts of the steam locomotive.

**Trucks, Frames and Equalizing System**

§ 230.106 -- Steam locomotive frame.

(a) **Maintenance and inspection.** Frames, decks, plates, tailpieces, pedestals, and braces shall be maintained in a safe and suitable condition for service, and shall be cleaned and thoroughly inspected as often as necessary to maintain in a safe and suitable condition for service with cleaning intervals, in any case, not to exceed every 1472 service days.

(b) *Broken frames.* Broken frames properly patched or secured by clamps or other suitable means which restores the rigidity of the frame are permitted.

§ 230.107 -- Tender frame and body.

(a) **Maintenance.** Tender frames shall be maintained in a safe and suitable condition for service.

(b) *Height difference.* The difference in height between the deck on the tender and the cab floor or deck on the steam locomotive shall not exceed 1 1/2 inches.

(c) *Gangway minimum width.* The minimum width of the gangway between steam locomotive and tender, while standing on tangent track, shall be 16 inches.

(d) *Tender frame condemning defects.* A tender frame with any of the following defects shall be removed from service immediately and repaired:

1. Portions of the tender frame or body (except wheels) that have less than a 2 1/2 inches clearance from the top of rail;
2. Tender center sill that is broken, cracked more than 6 inches, or permanently bent or buckled more than 2 1/2 inches in any six foot length;
3. Tender coupler carrier that is broken or missing;
4. Tender center plate, any portion of which is missing or broken or that is not properly secured; or
5. Tender that has a broken side sill, crossbearer, or body bolster.

§ 230.108 -- Steam locomotive leading and trailing trucks.

(a) **Maintenance.** Trucks shall be maintained in safe and suitable condition for service. Center plates shall fit properly, and the male center plate shall extend into the female center plate not less than 3/4 inch. All centering devices shall be properly maintained and shall not permit lost motion in excess of 1/2 inch.

(b) *Safety chain required.* A suitable safety chain shall be provided at each front corner of all four wheel engine trucks.

(c) *Clearance required.* All parts of trucks shall have sufficient clearance to prevent them from interfering with any other part of the steam locomotive.
§ 230.109 -- Tender trucks.
(a) *Tender truck frames.* A tender truck frame shall not be broken, or have a crack in a stress area that affects its structural integrity. Tender truck center plates shall be securely fastened, maintained in a safe and suitable condition for service, and provided with a center pin properly secured. The male center plate must extend into the female center plate at least 3/4 inch. Shims may be used between truck center plates.
(b) *Tender truck bolsters.* Truck bolsters shall be maintained approximately level.
(c) *Condemning defects for springs or spring rigging.* Springs or spring rigging with any of the following defects shall be taken out of service immediately and renewed or properly repaired:
   (1) An elliptical spring with its top (long) leaf or any other five leaves in the entire spring pack broken;
   (2) A broken coil spring or saddle;
   (3) A coil spring that is fully compressed;
   (4) A broken or cracked equalizer, hanger, bolt, gib or pin;
   (5) A broken coil spring saddle; and
   (6) A semi-elliptical spring with a top (long) leaf broken or two leaves in the top half broken, or any three leaves in the entire spring broken.
(d) *Tender securing arrangement.* Where equipped, tender devices and/or securing arrangements intended to prevent the truck and tender body from separating in case of derailment shall be maintained in a safe and suitable condition for service.
(e) *Side bearings and truck centering devices.* Where equipped, side bearings and truck centering devices shall be maintained in a safe and suitable condition for service.
(f) *Friction side bearings.* Friction side bearings shall not be run in contact, and shall not be considered to be in contact if there is clearance between them on either side when measured on tangent level track.
(g) *Side bearings.* All rear trucks shall be equipped with side bearings. When the spread of side bearings is 50 inches, their maximum clearance shall be 3/8 inch on each side for rear trucks and 3/4 inch on each side for front trucks, where used. When the spread of the side bearings is increased, the maximum clearance shall be increased proportionately.

§ 230.110 -- Pilots.
(a) *General provisions.* Pilots shall be securely attached, properly braced, and maintained in a safe and suitable condition for service.
(b) *Minimum and maximum clearance.* The minimum clearance of pilot above the rail shall be 3 inches and the maximum clearance shall be 6 inches measured on tangent level track.

§ 230.111 -- Spring rigging.
(a) *Arrangement of springs and equalizers.* Springs and equalizers shall be arranged to ensure the proper distribution of weight to the various wheels of the steam locomotive, maintained approximately level and in a safe and suitable condition for service. Adjusting weights by shifting weights from one pair of wheels to another is permissible.
(b) *Spring or spring rigging condemning defects.* Springs or spring rigging with any of the following defects shall be removed from service immediately and renewed or properly repaired:

1. Top leaf broken or two leaves in top half or any three leaves in spring broken. (The long side of a spring to be considered the top.) Broken springs not exceeding these requirements may be repaired by applying clips providing the clips can be made to remain in place;
2. Any spring with leaves excessively shifting in the band;
3. Broken coil springs; or
4. Broken driving box saddle, equalizer, hanger, bolt, or pin.

**Wheels and Tires**

§ 230.112 -- Wheels and tires.

(a) *Mounting.* Wheels shall be securely mounted on axles. Prick punching or shimming the wheel fit will not be permitted. The diameter of wheels on the same axle shall not vary more than 3/32 inch.

(b) *Gage.* Wheels used on standard gage track will be out of gage if the inside gage of flanges, measured on base line is less than 53 inches or more than 53 3/8 inches. Wheels used on less than standard gage track will be out of gage if the inside gage of flanges, measured on base line, is less than the relevant track gage less 3 1/2 inches or more than the relevant track gage less 3 1/8 inches.

(c) *Flange distance variance.* The distance back to back of flanges of wheels mounted on the same axle shall not vary more than 1/4 inch.

(d) *Tire thickness.* Wheels may not have tires with a minimum thickness less than that indicated in the table in this paragraph (d). When retaining rings are used, measurements of tires to be taken from the outside circumference of the ring, and the minimum thickness of tires may be as much below the limits specified earlier in this paragraph (d) as the tires extend between the retaining rings, provided it does not reduce the thickness of the tire to less than 1 1/8 inches from the throat of flange to the counterbore for the retaining rings. The required minimum thickness for tires, by wheel center diameter and weight per axle, is as follows:

<table>
<thead>
<tr>
<th>Weight per axle</th>
<th>Diameter of wheel center (inches)</th>
<th>MIN. THICKNESS (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000 pounds and under</td>
<td>44 and under</td>
<td>1 1/4</td>
</tr>
<tr>
<td></td>
<td>Over 44 to 50</td>
<td>1 5/16</td>
</tr>
<tr>
<td></td>
<td>Over 50 to 56</td>
<td>1 3/8</td>
</tr>
<tr>
<td></td>
<td>Over 56 to 62</td>
<td>1 7/16</td>
</tr>
<tr>
<td></td>
<td>Over 62 to 68</td>
<td>1 1/2</td>
</tr>
<tr>
<td></td>
<td>Over 68 to 74</td>
<td>1 9/16</td>
</tr>
<tr>
<td></td>
<td>Over 74</td>
<td>1 5/8</td>
</tr>
<tr>
<td>Over 30,000 to 35,000 lbs</td>
<td>44 and under</td>
<td>1 5/16</td>
</tr>
<tr>
<td></td>
<td>Over 44 to 50</td>
<td>1 3/8</td>
</tr>
<tr>
<td></td>
<td>Over 50 to 56</td>
<td>1 7/16</td>
</tr>
<tr>
<td></td>
<td>Over 56 to 62</td>
<td>1 1/2</td>
</tr>
<tr>
<td></td>
<td>Over 62 to 68</td>
<td>1 9/16</td>
</tr>
<tr>
<td></td>
<td>Over 68 to 74</td>
<td>1 5/8</td>
</tr>
<tr>
<td>Weight Range</td>
<td>Tire Width</td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Over 35,000 to 40,000 lbs</td>
<td>1 11/16</td>
<td></td>
</tr>
<tr>
<td>Over 44 and under</td>
<td>1 3/8</td>
<td></td>
</tr>
<tr>
<td>Over 44 to 50</td>
<td>1 7/16</td>
<td></td>
</tr>
<tr>
<td>Over 50 to 56</td>
<td>1 1/2</td>
<td></td>
</tr>
<tr>
<td>Over 56 to 62</td>
<td>1 9/16</td>
<td></td>
</tr>
<tr>
<td>Over 62 to 68</td>
<td>1 5/8</td>
<td></td>
</tr>
<tr>
<td>Over 68 to 74</td>
<td>1 11/16</td>
<td></td>
</tr>
<tr>
<td>Over 74</td>
<td>1 3/4</td>
<td></td>
</tr>
<tr>
<td>Over 40,000 to 45,000 lbs</td>
<td>1 7/16</td>
<td></td>
</tr>
<tr>
<td>Over 44 and under</td>
<td>1 1/2</td>
<td></td>
</tr>
<tr>
<td>Over 44 to 50</td>
<td>1 9/16</td>
<td></td>
</tr>
<tr>
<td>Over 50 to 56</td>
<td>1 5/8</td>
<td></td>
</tr>
<tr>
<td>Over 56 to 62</td>
<td>1 11/16</td>
<td></td>
</tr>
<tr>
<td>Over 62 to 68</td>
<td>1 3/4</td>
<td></td>
</tr>
<tr>
<td>Over 68 to 74</td>
<td>1 13/16</td>
<td></td>
</tr>
<tr>
<td>Over 74</td>
<td>1 7/8</td>
<td></td>
</tr>
<tr>
<td>Over 45,000 to 50,000 lbs</td>
<td>1 9/16</td>
<td></td>
</tr>
<tr>
<td>Over 44 and under</td>
<td>1 5/8</td>
<td></td>
</tr>
<tr>
<td>Over 44 to 50</td>
<td>1 11/16</td>
<td></td>
</tr>
<tr>
<td>Over 50 to 56</td>
<td>1 3/4</td>
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(e) *Tire width.* Flanged tires shall be no less than 5 1/2 inches wide for standard gage and no less than 5 inches wide for narrow gage. Plain tires shall be no less than 6 inches wide for standard gage and no less than 5 1/2 inches wide for narrow gage.

§ 230.113 -- *Wheels and tire defects.*
Steam locomotive and tender wheels or tires developing any of the defects listed in this section shall be removed from service immediately and repaired. Except as provided in § 230.114, welding on wheels and tires is prohibited. A wheel that has been welded is a welded wheel for the life of the wheel.
(a) **Cracks or breaks.** Wheels and tires may not have a crack or break in the flange, tread, rim, plate, hub or brackets.

(b) **Flat spots.** Wheels and tires may not have a single flat spot that is 2 1/2 inches or more in length, or two adjoining spots that are each two or more inches in length.

(c) **Chipped flange.** Wheels and tires may not have a gouge or chip in the flange that is more than 1 1/2 inches in length and 1/2 inch in width.

(d) **Broken rims.** Wheels and tires may not have a circumferentially broken rim if the tread, measured from the flange at a point 5/8 inch above the tread, is less than 3 3/4 inches in width.

(e) **Shelled-out spots.** Wheels and tires may not have a shelled-out spot 2 1/2 inches or more in length, or two adjoining spots that are each two or more inches in length, or so numerous as to endanger the safety of the wheel.

(f) **Seams.** Wheels and tires may not have a seam running lengthwise that is within 3 3/4 inches of the flange.

(g) **Worn flanges.** Wheels and tires may not have a flange worn to a 15/16 inch thickness or less, as measured at a point 3/8 inch above the tread.

(h) **Worn treads.** Wheels and tires may not have a tread worn hollow 5/16 inch or more.

(i) **Flange height.** Wheels and tires may not have a flange height of less than 1 inch nor more than 1 1/2 inches, as measured from the tread to the top of the flange.

(j) **Rim thickness.** Wheels may not have rims less than 1 inch thick.

(k) **Wheel diameter.** Wheels may not have wheel diameter variance, for wheels on the same axle or in the same driving wheel base, greater than 3/32 inch, when all tires are turned or new tires applied to driving and trailing wheels. When a single tire is applied, the diameter must not vary more than 3/32 inch from that of the opposite wheel on the same axle. When a single pair of tires is applied the diameter must be within 3/32 inch of the average diameter of the wheels in the driving wheel base to which they are applied.

§ 230.114 -- Wheel centers.

(a) **Filling blocks and shims.** Driving and trailing wheel centers with divided rims shall be properly fitted with iron or steel filling blocks before the tires are applied, and such filling blocks shall be properly maintained. When shims are inserted between the tire and the wheel center, not more than two thicknesses of shims may be used, one of which must extend entirely around the wheel. The shim which extends entirely around the wheel may be in three or four pieces, providing they do not lap.

(b) **Wheel center condemning defects.** Wheel centers with any of the following defects shall be removed from service immediately and repaired:
   1. Wheels centers loose on axle;
   2. Broken or defective tire fastenings;
   3. Broken or cracked hubs, plates, bolts or spokes, except as provided in paragraph (b)(4) of this section; or
   4. Driving or trailing wheel center with three adjacent spokes or 25 percent or more of the spokes in the wheel broken.

(c) **Wheel center repairs.** Wheel centers may be repaired by welding or brazing provided that the defect can properly be so repaired and, following the repair, the crankpin and axle shall remain tight in the wheel. Banding of the hub is permitted.
(d) *Counterbalance maintenance.* Wheel counterbalances shall be maintained in a safe and suitable condition for service.

**Steam Locomotive Tanks**

§ 230.115 -- Feed water tanks.
(a) *General provisions.* Tanks shall be maintained free from leaks, and in safe and suitable condition for service. Suitable screens must be provided for tank wells or tank hose and shall be maintained in a manner that allows the unobstructed flow of water. Feed water tanks shall be equipped with a device that permits the measurement of the quantity of water in the tender feed water tank from the cab or tender deck of the steam locomotive. Such device shall be properly maintained.
(b) *Inspection frequency.* As often as conditions warrant but not less frequently than every 92 service days, the interior of the tank shall be inspected, and cleaned if necessary.
(c) *Top of tender.* Top of tender behind fuel space shall be kept clean, and means provided to carry off excess water. Suitable covers shall be provided for filling holes.

§ 230.116 -- Oil tanks.
The oil tanks on oil burning steam locomotives shall be maintained free from leaks. The oil supply pipe shall be equipped with a safety cut-off device that:
(a) Is located adjacent to the fuel supply tank or in another safe location;
(b) Closes automatically when tripped and that can be reset without hazard; and
(c) Can be hand operated from clearly marked locations, one inside the cab and one accessible from the ground on each exterior side of the steam locomotive.

Appendix A-Inspection Requirements
Appendix B- Diagrams and Drawings

49 CFR Part 230
NORTHEAST CORRIDOR RAILROADS - REQUIREMENTS FOR AUTOMATIC TRAIN CONTROL AND ADVANCED CIVIL SPEED ENFORCEMENT SYSTEM

On July 22, 1998 the FRA issued an order requiring all trains operating on the Northeast Corridor between New Haven, Conn and Boston to be equipped to respond to a new advanced civil speed enforcement system (ACSES) in addition to the automatic train control (ATC) system already required on the NEC. On trains operating between Washington, D.C. and New York City, ACSES equipped trains may operate up to speeds of 135 mph. Trains north of N.Y. may operate up to 150 mph.

The ACSES is an improved system utilizing transponders to enforce speed restrictions. If the engineer fails to respond to the speed requirements provided by the ACSES, the train would automatically brake.

Amtrak’s cab signal system will be expanded from 4 aspects to 9 aspects of speed indications.

Maximum operating speed of 80 mph is set over any highway-rail crossing where only conventional warning systems are in place, and 95 mph where 4-quadrant gates and presence detection are provided.

Unequipped freight operations are allowed between New Haven and Boston during low volume night hours.

63 Fed. Reg. 39343
FRA Docket No. 87-2
CURRENT PENDING RULEMAKINGS

Federal Railroad Administration U.S. Department of Transportation

REGULATORY OVERVIEW (Safety Rulemaking, Reports, and Program Development)

Legend:

ANPRM  Advance Notice of Proposed Rulemaking

Italics Indicates project has been identified for development through the Railroad Safety Advisory Committee or a similar forum for collaborative rulemaking.

NPRM  Notice of Proposed Rulemaking

RSAC   Railroad Safety Advisory Committee

SACP    Safety Assurance and Compliance Program

Office of Safety

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NOTES:

Centralized Docket Management System - Dockets established after October 7, 1998, are available on the DOT Centralized Docket Management System facility and can be accessed over the Internet (http://dms.dot.gov). Detailed information is available at the Web site to assist in viewing documents,

Revised Docket Filing Procedures for FRA Rulemaking and Adjudicatory Dockets Final Rule (64 FR 70193)- This final rule amends certain FRA rules to provide accurate information to the public regarding filing requirements for FRA proceedings, The final rule is effective 2/14/00.

RSAC Website - See the RSAC website for details on pending tasks at: http://rsac.fra.dot.gov. Public Website contains all of the documents provided at meetings, The secured site is accessible by working group and task force members and provides minutes and working documents and information from working group and task force meetings.

SUMMARY OF CONSENSUS RULEMAKING REPORTS

Roadway Worker Safety. Consensus achieved in formal negotiated rulemaking; final rule published 12/16/96; effective 1/15/97. Denial of AAR and APTA petitions for reconsideration published 4/21/97.

Passenger Equipment Safety Standards. NPRM based in part on Working Group recommendations was published 9/23/97; final rule 5/12/99. (See below for further activity.)


Railroad Safety Advisory Committee:

Since its first meeting in 1996, the RSAC has accepted seventeen tasks. Below is a summary review of the RSAC initiatives to date. For complete information see the status section in Safety Rules and Reports.

The list below is a summary of the current status of each RSAC task. For more information and the history on each task, please reference the "Safety Rules and Reports - General" section of this report.

96-1 Power Brake. Final rule published 1/17/01 (66 FR 4104). An amendment, extending the effective date Regulations, freight, of the final rule until 5/31/01, was published on 2/12/01 (66 FR 9905); and a subsequent amendment further deferred the compliance date for providing a written record of a test under
232.409(c) until further notice (66 FR 29502; 5/31/01). FRA reviewed petitions for reconsideration and published amendments to Subpart D of the final rule 66 FR 36983; 811/01). Remaining responses to petitions for reconsideration were published 4/10/02 (69 FR 17556).

96-2 Track Safety. Final rule published 6/22/98; effective 9/21/98. FRA prepared an amendment to the final track rule providing for the use of Gage Restraint Measurement System technology (GRMS). The GRMS final rule amendment was published 1/10/01 (66 FR 1894). On 1/3 1/01, FRA published a notice extending the effective date of the RMS amendment to 4/10/01 (66 FR 8372). On 2/8/01, FRA published a notice delaying the effective date until 6/19/01, in accordance with the Regulatory Review Plan (66 FR 9676).

96-3 Railroad Communications (including revision of Radio Standards and Procedures. Final Rule published 9/4/98 (63 FR 47182)

96-4 Tourist Railroads. Open task to address needs of tourist and historic railroads. On 4/1/96 RSAC authorized the formation of a working group to monitor and assist completion of the steam locomotive regulations task. Planned future activities involve review of other regulations for possible adaptation to the safety need of tourist and historic railroads.

96-5 Steam-Powered Locomotives, revision of inspection standards. Final rule published 11/17/99 (64 FR 62828). Effective 1/18/00.

- Locomotive Engineer Qualification and Certification, general revision. Planning task accepted 10/31/96; planning group met 1/23/97; two task statements were accepted by the full Committee at 6/24/97 meeting (See 97-1 and 97-2). Planning task is completed.

- Roadway Maintenance machines (On-Track Equipment) Safety Standards. The NPRM was published 1/10/01 (66 FR 1894). The full RSAC approved recommendations for resolution of comments on 5/29/02. Final rule to be published.

- Locomotive Crashworthiness and Working Conditions Planning task accepted 10/31/96; planning group met 1/23/97; two task statements were accepted by the full Committee at 6/24/97 meeting [see 97-1, 97-2]. Planning task is completed.

- Locomotive Crashworthiness. Working Group is currently drafting performance-based standards for freight and locomotives to present to the RSAC. An accident review task force has evaluated the potential effectiveness of suggested improvements. The Working Group tentative agreement for a proposed rule. The NPRM and RIA are being revised reflect the changes. Next: Working Group review of final NPRM draft. ask accepted 6/24/97; Working Group held initial meeting 9/10-11/97. The Working Group established task forces on noise and temperature.

Sanitation: The NPRM on Sanitation was published 1/2/01 (66 FR 136). A public hearing was held 4/2/01. Final rule published 4/4/02 (67 FR 16032).

Noise: Cab Working Group met most recently in Chicago on 11/12-11/14/02. Tentative consensus reached on the draft rule text. Target: NPRM to the full RSAC for approval in spring.

Cab Temperature and Vibration: The Cab Working Group has also considered issues related to cab temperature (no further action is planned at this time) and is expected to consider additional issues (such as vibration) in the future.

97-3  Event Recorders (data survivability). Working Group met actively in 2002, reviewing draft language for an NPRM. FRA circulated a revised draft NPRM to the Working Group in mid-2003 for review and approval.

97-4, 97-5  Positive Train Control Rulemaking: The Processor-based signal and train control system (PTC) NPRM was approved by consensus at the full RSAC meeting on 9/14/00. NPRM was published 1/01/01 in the Federal Register (66 FR 42352). The comment period was extended to 11/8/01. The Working Group, has made recommendations for resolution of most major issues. Resolution of the "base case" issue is outstanding. Efforts continue to complete rule principles for consideration by the full RSAC.


Second Report: The Appropriations Conferees included in their report on the FY 2003 DOT Appropriations Act a requirement for a second review of the costs and benefits of PTC. FRA will request the RSAC to comment on the draft report when available.

Meeting schedule: Briefing of the full RSAC on the "base case" issue was done on 7/17/02. Meeting held with AAR on 7/17/02 to discuss the "base case". Full Working Group met 10/22-23/02 and again 3/4-6/03. The Risk2 team is meetings to develop a solution to the base case issue; and the Accident Review Team is meeting to update the view of preventable accidents. Next Working Group meeting 7/8-7/9/03.

97-7  Calculation of Damages For reportable Train Accidents. The full RSAC, at the 2/13/02 meeting agreed to terminate action.
Blue Signal Protection for Workers. First meeting held 10/16-18/00; six meetings have been held. Reached consensus on several issues. FRA drafting a NPRM that attempts to resolve issues among parties.

Accident/Incident Reporting. NPRM was published in the Federal Register on 10/9/02. Working Group developed consensus recommendations on resolution of comments on the NPRM during meeting of 12/4/02. Final rule published 3/3/03. Will become effective 5/1/03.

SAFETY RULES AND REPORTS-GENERAL

Accident/Incident Reporting

General Revision

Summary: The Rail Safety Enforcement and Review Act barred FRA from adjusting the monetary threshold for reporting of train accidents until the methodology was revised. In addition, FRA identified the need to comprehensively revise these regulations, which had not been revised since 1974. The report of the Committee of Conference on the Department of Transportation and Related Agencies Appropriation Act, 1996, directed FRA to issue a final rule in this proceeding by 6/1/96.

History: An NPRM was issued 8/19/94, followed by public hearings and written comment. A public regulatory conference was convened 1/30-2/3/95 in an effort to resolve outstanding issues. A notice of decision to issue a supplemental NPRM was published 7/3/95, but was withdrawn in a notice published on 1/24/96.

Status: Completed. Final rule was issued 5/30/96 and published 6/18/96 (61 FR 30940). Stay requests were denied, and technical amendments were published 11/2/96 (61 FR 59368). A notice of availability of custom software was also published 11/22/96 (61 FR 59485). On 12/16/96, the Administrator signed final rule amendments, which were published 12/23/96 (61 FR 67477). Final rule became effective 1/1/97.

Reporting Threshold (RSAC Task 2000-1)

FRA offered RSAC a task on 9/30/97 to review the definition of events required to be reported as train accidents, as requested by the Committee on 6/24/97. By request of the Committee, the task was limited to determination of damages qualifying an event as a reportable train accident. The Working Group held its initial meeting 2/8/99. The Working Group designed a survey form to collect specific data about damages on railroad equipment. The survey began 8/1/00 and ended 1/31/01. The survey was voluntary, but most of the larger freight railroads participated, as well as four passenger railroads. Report was completed last week of April 2001. The Working Group met 5/21-23/01 to review the report. Pilot proved to be unworkable. The Working Group agreed to terminate
action after reviewing the comments. A close out report was provided to the Working Group for sign off on 12/02/01. The full RSAC approved terminating at the 2/13/02 meeting.

**OSHA Conformity and Misc. Revisions (RSAC Task 2001-1)**

FRA offered an additional task at the RSAC meeting of 4/23/01 which was accepted by the full RSAC and assigned to the Accident/Incident Working Group. The task concerns amendments needed to conform Part 225 to the Occupational Safety and Health Administration's revised record keeping and reporting rule O/18/01. In addition, the RSAC approved the review of, need for, and content of, various proposed changes to the Reporting Guide. The Working Group met initially on 5/21-23/01 and reached consensus at a final meeting 4/24-26/02. A briefing was held at the full RSAC meeting held on 5/29/02 and agreement was reached to use a ballot for approval. The full RSAC approved the Working Group recommendations on the draft NPRM on 7/19/02 by letter ballot. The NPRM was published in the Federal Register on 10/9/02 (67 FR 63022), and a correction notice was published 11/26/02 (67 FR 70809). Working Group met to go over the comments on 12/4/02 and reached agreement on recommendations for resolution. Final rule published 3/3/03 (68 FR 10108).

**Blue Signal Protection**

Summary: On 8/16/93, FRA published a final rule permitting one or more utility employees to associate themselves with a train crew for the purpose of performing normal operating functions that require employees to go on, under or between rolling stock, without use of blue signal protection (which is ordinarily appropriate for mechanical duties). During the proceeding it was noted that rules for locomotive engineers working alone were not clearly defined. FRA published a final rule amendment governing single engineers working alone on 3/1/95, but granted a requested suspension of the amendment on 3/1/95 pending development of additional facts. Since that time, additional blue signal issues have continued to emerge, including application of the requirements to contractors performing the subject functions on railroad property.

Status: On 10/31/96, the RSAC advised FRA that this project should not be proposed for early tasking, given conflicting demands on the resources of member organizations. RSAC accepted task at the 1/28/00 full Committee meeting. A Working Group has been formed and held its first meeting on 10/16-18/00 in Washington, DC. The second and third meetings were held 2/27-3/1/01 in San Diego, CA and 3/20-3/22/01 in St. Louis, MO. Additional meetings were held 05/1-3/01 in Atlanta, GA and 06/19-21/01 in Orlando, FL. The group met 10/23-25/01, in Orlando, FL reaching tentative consensus on several issues. The next meeting was held 1/28-31/02. FRA has reviewed legal issues and is preparing an NPRM that attempts to resolve the issues among the parties.

**Bridge Displacement Detection Systems (Report)**

Statutory deadline: 5/2/96

Status: Completed. A technical evaluation report was published 6/23/94 and made available to the respective committees. A formal report was issued and forwarded to the Congress on 4/11/00.

**Control of Alcohol and Drug Use - Foreign Crews**

Summary: This rulemaking addresses the application of random testing and other requirements to employees of a foreign railroad who are based outside the United States and perform train service in the United States. In general, FRA's regulation on the control of alcohol and drug use (49 CFR Part 219) currently applies to all railroads that operate on the general rail system of transportation in the United States. However, part 219 presently exempts from certain subparts operations of foreign railroads employing crews based outside the U.S. Currently such an employee whose primary reporting point is outside the U.S. but who performs service in the U.S. subject to the hours of service laws (train, dispatching, or signal) is exempt from pre-employment and random testing. FRA prepared a rule proposing to limit the exemption to foreign railroad's foreign-based employees who perform signal service in the U.S.

Status: The NPRM was published 12/11/01 (66 FR 64000). On 02/14/02, FRA conducted a public hearing on the NPRM. The comment period was extended through 03/14/02 in order to receive post-hearing submissions. On 7/10/02, The Canadian Human Rights Commission published its policy on alcohol and drug testing. On 12/10/02, FRA issued a Federal Register notice inviting comment on the policy and extending the comment period until further notice while it engages in further consultations with the Governments of Canada and Mexico on safety issues in the NPRM (67 FR 75966).

**Event Recorder Next-Generation Performance Standards (RSAC Task 97-3)**

Summary: The National Transportation Safety Board has noted the loss of data from event recorders in several accidents due to fire, water and mechanical damage. In issuing final rules for event recorders which became effective 5/5/95, FRA noted the need to provide more refined technical standards. In a letter to FRA, NTSB proposed performance standards for data survivability.

Background: Conducted an initial meeting of an informal Working Group comprised of AAR, RPI, and labor, and co-chaired by NTSB and FRA experts, on 12/7/95 to consider development of technical standards. At the RSAC meeting on 7/24-7/25/96, the AAR agreed to continue this inquiry, and on 11/1/96, AAR
reported to the RSAC the status of work on proposed industry standards. On 3/5/97, NTSB issued recommendations regarding testing and maintenance of event recorders as a result of finding in the investigation of the BNSF accident of 2/1/96 at Cajon Pass, California. On 3/24/97, the RSAC indicated its desire to receive a task to consider NTSB recommendations with respect to crash survivability, testing and maintenance.

Status: RSAC accepted task 6/24/97. The Event Recorder Working Group first met 9/12/97. The Working Group and a Task Force have conducted meetings and a draft proposed rule is being reviewed. NPRM drafts were circulated to the Working Group on 5/21/01 and again on 1/30/02 (accompanied by a draft regulatory evaluation). Working Group meetings were held 3/28/02, 4/23/02, and 5/30-31/02. FRA is preparing a final draft NPRM for circulation to the Working Group.

Florida Overland Express

Summary: FRA received a petition for a rule of particular applicability for operations over a new high-speed railroad between Miami and Tampa via Orlando. The State of Florida had established a dedicated funding stream of $70 million per year towards creation of this new private/public partnership.

Status: Received petition for rule of particular applicability 2/18/97. FRA issued NPRM 12/12/97 (62 FR 65478). Comment period closed. FRA reviewed comments received and held a public hearing on 11/23/98 to discuss a variety of issues. The State of Florida withdrew its support and funding for this project 1/99, suspending all activity on development. The rulemaking was terminated (65 FR 50952; 8/22/00).

Freight Car Safety Standards; Maintenance-of-Way Cars

Summary: Cars not in compliance with the Freight Car Safety Standards may be operated at track speed in revenue trains if they are company-owned, stenciled cars. FRA published an NPRM 3/10/94 to close this loophole. FRA requested the Association of American Railroads to amplify its comments by letter of 12/20/94. AAR response received 8/4/95. FRA offered a task to the RSAC to resolve final rule issues on 9/30/97, but objection was made by the AAR.


Locomotive Crashworthiness and Working Conditions

Summary: The Rail Safety Enforcement and Review Act of 1992 required FRA to conduct a proceeding regarding locomotive crashworthiness and working conditions and to issue regulations or submit a report. Areas for consideration included structural means of preventing harm to crew members in collisions...
collision posts, anti-climbers, etc.) and matters related to safety, health and productivity (e.g., noise, sanitation).

Statutory deadline: 3/2/95 (report or regulations)

Background: FRA conducted research, outreach, and a survey of locomotive conditions and finalized a report to the Congress transmitted by letter of 9/18/96. The report conveyed data and information developed by FRA to date, closed out those areas of investigation for which further action is not warranted, and defined issues that should be pursued further in concert with the industry parties, either for voluntary or regulatory action. On 10/31/96, the RSAC accepted a preliminary planning task. The Locomotive Crew Safety Planning Group met 1/23/97, and subsequent consultations led to preparation of task statements.

Status: RSAC accepted two tasks 6/24/97, and those tasks are being pursued through two separate working groups as set forth below.

**Locomotive Crashworthiness (RSAC Task 97-1)**

Working Group met initially 9/8-9/97 and established a task force on engineering issues that reviewed collision history and design options. The Working Group reviewed the results of research and is drafting performance-based standard. The review of collision data for use in the regulatory action was completed in 9/00. An accident review task force has evaluated the potential effectiveness of suggested improvements. A draft NPRM has been circulated to the Working Group, which met 10/9-10/10/01 to review the draft and consider economic issues. Next meeting was held 1/17-18/02 to go over proposed drafts. AAR and the Railroads presented revised crashworthiness standards for consideration by the Working Group. The Working Group reached tentative agreement on the elements of a proposed rule, subject to FRA's review of the data and economic implications. Upon completion of the review, FRA will provide a revised NPRM draft for Working Group final review. Next: Full RSAC approval.

**Locomotive Cab Working Conditions (RSAC Task 97-2)**

Working Group met for the first time 9/10-11/97 and established task forces on noise and temperature, while the Working Group focused on sanitation.

Sanitation. The Working Group approved a draft NPRM on cab sanitation, which was approved by the full committee on 12/7/00. The NPRM was published 1/2/01 (66 FR 136). A public hearing was held 4/2/01; and the docket remained open through 5/1/01. Refinement and substantive changes were incorporated into the rule language. A meeting was held 8/2/01 to discuss the comments in response to the NPRM. Agreement was reached on resolution of the comments to the NPRM, subject to review of meeting minutes capturing agreements. Verbal
consent given by the Working Group to send to full RSAC for ballot vote. Full RSAC approved by ballot voting on 1/02/02. Ballots were due by 12/10/01. Final rule published 4/4/02 (67 FR 16032). Rule was effective 6/3/02.

Noise exposure. The Cab Working Group met in October and November of 2000 on the issue of occupational noise exposure for cab employees and achieved tentative agreement on most of the significant issues. The Working Group met again 4/3-5/01 and 7/24-25/02. The Cab Working Group met most recently in Chicago on 11/12-11/14/02 and reached tentative consensus on draft rule text for the NPRM. Completion of the document may be handled by circulation of drafts. Target: NPRM to the full RSAC for approval in the spring.

Temperature. The Cab Working Group has also considered issues related to cab temperature, but could not reach agreement to proceed. No further action is planned at this time. The Cab Working Group is expected to consider additional issues (such as vibration) in the future.

**Locomotive Engineer Certification; Miscellaneous Revisions (RSAC Task 96-6)**

Summary: The final rule for locomotive engineer certification became effective in 1991, but certain issues were left unresolved. Unresolved or difficult issues associated with the rule were not recognized until it was implemented. FRA issued two interim final rules as temporary solutions to these unresolved problems. The final interim rule published 4/93 (58 FR 18982) limited certification to operators of traditional locomotives and refined the types of conduct for which decertification is appropriate. The second interim rule published 10/12/95 (60 FR 53133) refined agency practice and procedure concerning the dispute resolution process for engineer certification, recertification and revocation appeals. In 1996, the RSAC agreed to review all aspects of the rule including any comments received with regard to the two interim rules.

Status: Completed. Based on the RSAC's consensus recommendations, an NPRM was published 9/22/98 (63 FR 50625). The RSAC's Working Group met to resolve issues presented in public comments to the NPRM, and on 1/28/99 the RSAC voted to transmit recommendations regarding issues for which the Working Group had received comments. The final rule was published 11/8/99 (64 FR 60966); effective date 1/7/00. (FRA Docket No. RSOR-9. Notice 12).

Mail delays: On 1/2/02 (67 FR 22), FRA issued an interim final rule to deal with the problem of significant mail delivery delays caused by domestic terrorism that could potentially harm petitioners under FRA's dispute resolution process; this interim rule amended the definition of "filing."

**Northeast Corridor (NEC) Signal & Train Control**

Summary: This proceeding developed an order enhancing train control
arrangements on the NEC. On 1/30/97, Amtrak provided to FRA a draft system concept for the Advanced Civil Speed Enforcement System (ACSES), including conditions for operation on designated territories on the south and north ends of the NEC. Final details were received by FRA on 7/9/97. A notice of Proposed Order for the new signal and train control system authorizing speeds to 150 miles per hour (135 mph on the South End with only high-speed trains equipped under "flanking protection") was published 11/20/97 (62 FR 62097), and written comments were due by 12/22/97. As a result of requests, a public hearing was set for 2/17/98 (63 FR 3389), and the comment closing date was extended to 2/24/98. Final Order of Particular Applicability published 7/22/98 (63 FR 39343); effective 8/21/98. Amendments to the Order of Particular Applicability published 10/19/00 (65 FR 62975). The amendments include a new implementation schedule and technical changes. The order was further amended to provide a temporary procedure for operations in the case of failed on-board equipment (66 FR 1718; 1/9/01).

Status: Completed. The system has been cutover between New Haven and Boston and on certain high-speed segments south of New York City. FRA continues to work with parties on implementation issues, and future proceedings may consider extension of the system to the entire NEC.

Northeast Corridor Safety (NEC) Committee

Summary: This committee had not met recently because of funding constraints under the advisory committee cap (now removed) and as a result of the need to intensively address specific issues with Amtrak and other NEC operators related to recent corridor improvements and the beginning of Acela Express service at speeds to 150 mph. Issues addressed in past years included signal/train control criteria to support these new high speed operations, emergency response, coordination of freight and passenger service on the NEC, vandalism and trespassing. The committee's work has prompted important safety research, legislative proposals and regulatory action.

Background: The NEC Safety Committee was originally created pursuant to the Railroad Safety Improvement Act of 1988, as amended by the Rail Safety Enforcement Act of 1992. The statute provided for the Committee to expire on January 1, 1999, or on such date as the Secretary deems to be appropriate. It has served as an effective forum for interested parties to address safety issues related to the operation of the Nation's foremost high-speed passenger line. There is a continuing need for advice on safety issues, but since it is not necessary to re-activate the statutory Committee, it has been re-established as a discretionary committee. An NEC forum was held 12/11/01.

Passenger Equipment Safety Standards

Summary: The Federal Railroad Safety Authorization Act of 1994 (enacted 11/2/94) required FRA to issue initial passenger safety standards within 3 years and complete standards within 5 years. The agency was authorized to consult with
industry parties outside the Federal Advisory Committee Act, making it possible to conduct an informal negotiated rulemaking.

Statutory deadline: 11/2/97 (initial); 11/2/99 (final).

Status:
Phase I: Completed. An initial meeting of the Passenger Equipment Safety Working Group (passenger railroads, operating employee organizations, mechanical employee organizations, and representatives of rail passengers) was held on 6/7/95, and the group met regularly to develop an NPRM. Manufacturer/supplier representatives served as associate members. FRA prepared an ANPRM indicating the issues under review by the Working Group, which was published 6/17/96 (61 FR 30672). The Working Group held its final meeting on the NPRM 9/30-10/2/96, having reached consensus on a portion of the issues presented. An NPRM was published 9/23/97 (62 FR 49728). A public hearing was held 11/21/97 (62 FR 55204; 10/23/97). Comments were due 11/24/97. Final Working Group meeting on the initial standards was held 12/15-16/97, and an additional meeting on intercity and high speed issues was held 1/6/98. The final rule was published 5/12/99 (64 FR 25540). Final rule amendments responsive to petitions for reconsideration on issues regarding inspection, testing and maintenance of passenger cars were published 7/3/00 (65 FR 41284). FRA's notice responding to all remaining issues except for fire safety issues was published in the FR on 4/23/02 (67 FR 19970). Fire safety amendments were published 6/25/02 (67 FR 42892).

Targeted Rulemakings (Phase II): The first phase of this rulemaking activity, including the passenger emergency preparedness proceeding described below, resulted in comprehensive safety standards for passenger service. Phase II will address enhancements based on ongoing research, development of detailed standards by the American Public Transportation Association (APTA) Passenger Rail Equipment Safety Standards (PRESS) task force, and other identified needs. This phase will be progressed through targeted rulemakings as research results and consultations mature. A third annual research needs workshop was held on 5/01/02 in Washington, DC., to help prepare for future work.

Passenger Train Emergency Preparedness

Summary: The Federal Railroad Safety Authorization Act of 1994 required FRA to issue emergency preparedness standards for passenger service. Initial standards were required within 3 years and complete standards within 5 years. The agency was authorized to consult with industry parties outside the Federal Advisory Committee Act, making it possible to conduct an informal negotiated rulemaking.

Statutory deadline: 11/2/97 (initial); 11/2/99 (final)

Background: An initial meeting of the Working Group for passenger train emergency preparedness standards was held on 8/8/95. The group met 2/6-7/96 to
develop elements of an NPRM and met jointly with the Passenger Equipment Safety Standards Working Group on 3/26/96 to consider related issues, including the implications of Emergency Order No. 20 and recommendations of the National Transportation Safety Board. The Working Group included representatives of passenger railroads, operating employee and dispatcher organizations, and rail passenger organizations, and an advisor from the National Transportation Safety Board. The Working Group approved draft rule text, which was incorporated in an NPRM forwarded for review and clearance. Changes requested during review and clearance were provided to the Working Group during the week of 12/16/96.

Status: Completed. The NPRM was published 2/24/97 (62 FR 8330), and a notice of public hearings was published 3/6/97 (62 FR 10248). Public hearings were held in Chicago on 4/4/97 and in New York City on 4/7/97. Written comments were due by 4/25/97. The Working Group met 8/28/97 and agreed in principle to revisions for inclusion in the final rule. The final rule was published 5/4/98 (63 FR 24630), and a correction notice was published 7/6/98 (63 FR 36376).

NOTE: The following order is closely associated with the two prior entries:

Emergency Order No. 20

Summary: This order deals with the safety of push/pull and electric multiple unit service. The order was issued 2/20/96 (61 FR 6876; 2/22/96), and amended 2/29/96 (61 FR 8703; 3/5/96). Intercity and commuter passenger railroads were required to adopt operating rules providing for observance of reduced speed where delays are incurred in blocks between distant signals and signals at interlocking or controlled points. Marking of emergency exits and testing of emergency windows was required. Interim system safety plans were required to be filed.

Status: Completed. The order has been fully implemented. On 3/26/96, the Passenger Equipment Safety Working Group and the Emergency Preparedness Working Group met jointly to consider implementation issues and crossover issues with the two rulemaking proceedings and recent recommendations of the National Transportation Safety Board. The American Public Transportation Association and its members have undertaken a number of actions in response to (but not required by) the emergency order, including development of comprehensive system safety plans. Codification, revision or termination of provisions will be considered during the second phase of passenger safety standards rulemaking.

Positive Train Control

(a) Evaluation of needs and feasibility (implementation) (RSAC Tasks 97-4 and 97-5)

Summary: These tasks involve defining PTC functionalities, describing
available technologies, evaluating costs and benefit of potential systems, and considering implementation opportunities and challenges, including demonstration and deployment.

Status: Accepted by RSAC 9/30/97. Monitoring of implementation continues. Data and Implementation Task Force completed report on future of PTC, which as accepted by the full RSAC on 9/8/99. Most recent meetings of the Working Group held 10/22-23/02 and 3/4-3/6/03.

(b) Performance Standards for PTC Systems (RSA C Task 97-6)

Summary: Existing signal and train control regulations are built around relay-based controllers and traditional track circuits, but technology is rapidly advancing. This task requires revising various regulations, including 49 CFR Part 236, to address the safety implications of processor-based signal and train control technologies, including communication-based operating systems. The purpose of the effort is to encourage deployment of innovative technology by providing a predictable environment. The concept of PTC refers to the ability to prevent train-to-train collisions, over speed derailments and casualties to roadway workers who are within authorized work zones along the railroad.

Status: Accepted by RSAC 9/30/97. The proposed rule on processor-based signal and train control systems was approved by consensus at the full RSAC meeting on 9/14/00. The NPRM was published in the Federal Register on 8/10/01 (66 FR 42352). The comment period was extended until 11/8/01. The Working Group met 12/4-6/01 in San Antonio, TX, and efforts continue to develop recommendations for resolution of issues raised by the public comments. Full RSAC briefed on the "base case" on 5/29/02. Consultations on "base case" issue continue; team met 10/1-4/02 in Chicago to prepare suggestions for consideration by the full Working Group. Full Working Group met 10/22-23/02 and 3/4-3/6/03. The team assigned to develop alternative constructs for the "base case" continues to meet.

(c) Progress Report to the Congress

Summary: The Swift Rail Development Act of 1994 required FRA to submit a status report on the implementation of positive train control as a follow-up to the 7/94 Report entitled Railroad Communications and Train Control.

Statutory deadline: 12/31/95


Power Brakes
Summary: The Rail Safety Enforcement and Review Act (1992) required FRA to revise the power brake regulations. The statute required adoption of requirements for 2-way end-of-train telemetry devices (EOTs) and "standards for dynamic brakes."

Statutory deadlines: Final rule by 12/31/93; 2-way EOTs to be used on trains operating greater than 30 miles per hour or in mountain grade territory to be equipped by 12/31/97.

Status: FRA published an NPRM 9/16/94 and conducted six days of public hearings ending 12/94. Due to strong objections to the NPRM, additional options were requested from passenger interests by 2/27/95 and from freight interests by 4/3/95. Further action is as follows:

1) Passenger standards revision: FRA requested the Passenger Equipment Safety Standards Working Group to incorporate new proposals for revisions of the power brake regulations in the NPRM for passenger equipment safety. Working Group proceedings on the elements of the NPRM concluded 10/2/96 without full agreement on power brake elements. See Passenger Equipment Safety Standards for final rule action.

2) Freight standards revision (RSAC Task 96-1): Completed. On 4/1/96, the RSAC accepted the task of preparing a second NPRM. The Working Group initiated its efforts in May, and on 10/31/96 the RSAC extended the deadline for a final report until 1/15/97. At the Working Group meeting 12/4/96, an impasse was declared, and subsequent efforts to revive discussions were not successful. On May 29, FRA notified the Working Group by letter that the task will be formally terminated. FRA withdrew task at 6/24/97 full Committee meeting. FRA prepared second NPRM reflective of what was learned through the collaborative process. NPRM published 9/9/98 (63 FR 48294) (FRA Docket No. PB-9, Notice No. 13). (RSAC Task 96-1--terminated). Public hearings were conducted on 10/26/98 and 11/13/98 and a technical conference was held on 11/23-24/98. Final date for submission of comments extended until 3/1/99. The final rule was published 1/17/01 (66 FR 4101). An amendment extending the effective date of the final rule until 5/31/01, was published on 2/12/01 (66 FR 36983; 8/1/01). Remaining responses to petitions for reconsideration published in the Federal Register 4/10/02 (67 FR 17555).

3) Two-way end-of-train devices: Completed. FRA published notice on 2/21/96 that this issue would be separated from the balance of the freight issues and expedited for completion of a final rule. A public regulatory conference was convened 3/5/96 to explore remaining issues, and written comments were due 4/15/96. (Railroads also agreed to an expedited schedule that ensured application of this technology by 12/15/96 on 2% or greater grades and by 7/1/97 for other

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trains.) The final rule was published 1/2/97 (62 FR 278) (FRA Docket No. PB-9, Notice No. 6), and it became effective 7/1/97. FRA received two petitions for reconsideration ("local train" definition and implementation date for smaller railroads). A notice denying the request to delete the tonnage restriction for local trains and granting extension of the compliance date for railroads with fewer than two million work hours was published 6/4/97 (62 FR 30461). On 11/4/97, held technical conference on petition of American Short Line Railroad Association regarding operation of very light trains over grade territory (see 62 FR 52370; 10/7/97); subsequently granted certain relief.

On 1/16/98, FRA published NPRM to clarify application of two-way EOT requirements to intercity passenger trains with express equipment at the rear (63 FR 195). Final rule was issued 5/1/98 (63 FR 24130). (FRA Docket No. PB-9, Notice No. 11).

Note: On 2/6/96, the Administrator issued Emergency Order No. 18, requiring use by the BNSF of 2-way EOTs or equivalent protection for heavy grade operations over the Cajon Pass (61 FR 505; 2/9/96).

**Railroad Communications (includ. Radio Standards and Procedures) (RSAC Task 96-3)**

Summary: In submitting the required report to the Congress on Railroad Communications and Train Control on 7/13/94, FRA noted the need to revise existing Federal standards for radio communications in concert with railroads and employee representatives. On 4/1/96, the RSAC accepted the task of preparing an NPRM, including consideration of communication capabilities required in railroad operations. The Working Group presented a consensus NPRM to the full Committee on 3/24/97, and the Committee voted to recommend issuance of the NPRM to the Administrator in balloting that ended 4/14/97. NPRM issued 6/11/97 and published 6/26/97 (62 FR 34544) (FRA Docket No. RSOR-12, Notice No. 4). Comment period closed 8/25/97. (FRA Docket No. RSOR-12, Notice No. 5).


**Reflectorization of Rail Rolling Stock**

Summary: FRA first examined the use of reflectors in the early 1980's. The Swift Rail Development Act of 1994 required the FRA to revisit the issue of railcar conspicuity. FRA conducted an additional study of railcar visibility which determined that technological advances in reflective material have made reflective material a more feasible and cost-effective option in enhancing rail safety.

Status: Preliminary benefit-cost analysis found that reflectors are cost-effective. FRA reviewed cost estimates provided by comments, and concluded that reflectorization is cost beneficial. FRA is preparing a proposed NPRM for
Regulatory Reinvention

Summary: In response to the Administration's call for regulatory review, elimination and reinvention, FRA took several actions to repeal obsolete regulations and simplify agency processes that affect external customers. Major elements of this effort are included in regulatory revision efforts described under other headings.

Status: Completed. Interim final rule amendments reducing frequency of reporting regarding signal and train control systems (49 CFR Part 233), simplifying review requirements for certain modifications of signal systems (49 CFR Part 235), and making conforming changes regarding inspection of ATC/ATS/ACS (49 CFR Part 236) published 7/1/96 (61 FR 33871). These Interim Final Rule amendments were adopted as a final rule published 9/28/01 (66 FR 49556).

Note: FRA's proposed 1999 rail safety reauthorization legislation, introduced in the 106th Congress as H.R. 2683 and S. 1496, included provisions to permit flexibility for railroads to make accident/incident reports less frequently than monthly (e.g., as in the case of a small railroad with nothing to report) and to eliminate outdated requirements for notarization of reports. No action was taken on this legislation. Section 104 of the Department's 2002 reauthorization proposal, which was transmitted to the Congress on 7/8/02, renewed this suggestion.

Roadway Worker Safety

Summary: In requiring the review of the Track Safety Standards, the Rail Safety Enforcement and Review Act (1992) required FRA to evaluate the safety of maintenance-of-way employees. In addition, the Brotherhood of Maintenance-of-Way Employees and the Brotherhood of Railroad Signalmen petitioned FRA to issue "on-track safety" rules.

Background: FRA published a notice 8/17/94 initiating a formal negotiated rulemaking. The negotiated rulemaking committee reported a statement of principles 5/17/95 and completed an NPRM draft 8/95. NPRM published 3/14/96 (61 FR 10528); initial written comments were due 5/13/96. Public hearing held 7/11/96.

Status: Completed. The final rule was published 12/16/96 (61 FR 65959k effective 1/15/97. Petitions for reconsideration were denied in a notice published 4121/97. A consolidated hearing on waiver petitions was held 5/22/97, and written comments were due by 6/9/97. FRA issued decisions on individual petitions as investigations and analysis were completed.

Safety Integration Plans
Summary: In response to the proposed acquisition of Conrail by Norfolk Southern and CSX Transportation, FRA suggested, and the Surface Transportation Board required, that the petitioners file with the Board of Safety Integration Plans (SIPs). In coordination with the Board, FRA proposed regulations requiring preparation and FRA review of SIPs in connection with future railroad mergers.

Status: Completed. FRA and the STB jointly issued an NPRM 12/31/98 (63 FR 72225) to institutionalize the SIP process to ensure that proper safety planning and safety investments are undertaken during a merger. The proposed rule spells out the types of transactions that will require SIPs and outlines the roles of FRA and the STB in overseeing the SIP process. On 3/8/02, the FRA Administrator and the STB approved the SIP final rule to address safety concerns that may arise in railroad mergers. The final rule was published in the Federal Register on 3/15/02 (67 FR 11582). Responses to petition for reconsideration were published in the Federal Register on 11/08/02 (67 FR 68041).

Small Railroads; Interim Policy Statement

Summary: The Small Business Regulatory Enforcement Fairness Act of 1996 amended the Regulatory Flexibility Act and required, among other things, that each agency establish small business communication and enforcement programs.

Statutory deadline: 3/29/97

Status: Interim policy statement published 8/11/97 (62 FR 43024). Public meeting to address definition of "small entity" was held on 9/28/99. FRA is preparing a final policy statement.

Steam Locomotives (RSAC Task 96-5)

Summary: A committee of steam locomotive experts from tourist and historic railroads sought a partnership with FRA to revise the steam locomotive regulations. The revisions relieve regulatory burdens while updating and strengthening the technical requirements.

Status: Completed. Revision of the Steam Locomotive Inspection regulations was tasked to the RSAC on 7/24/96. A Task Force of the Tourist and Historic Railroads Working Group worked actively toward finalization of a final rule. NPRM rule text was agreed upon within the task force and was approved by the Tourist and Historic Working Group on 9/3/97 and provided to the RSAC on 9/30/97. The RSAC approved the consensus NPRM by mail ballot 2/17/98. NPRM published 9/25/98 (63 FR 51404) (FRA Docket No. RSSL 98-1, Notice No. 1). Public hearing was held 2/4/99. Task Force formulated recommendations in response to comments received. The recommendations were accepted by the Working Group, and the full Committee voted to incorporate the recommendations
Roadway Maintenance Machines (RSAC Task 96-7)

Summary: A 1990 petition to FRA from the Brotherhood of Maintenance-of-Way Employees asked FRA, among other requests, to propose standards related to the safety of persons riding or operating MOW equipment. FRA elected not to immediately pursue that issue given other pending workload. However, this issue was renewed during the deliberations of the RSAC Track Safety Standards Working Group.

Status: On 10/31/96, the RSAC accepted a task of drafting proposed rules for the safety of this equipment. A task force of the Track Safety Standards Working Group was formed to address this issue. The NPRM was approved by the full RSAC and the NPRM was published 1/10/01 (66 FR 1930). The task force met 2/27-3/1/02 to review comments FRA received in response to the NPRM and agreed to disposition of comments for the final rule. A ballot was issued to the Working Group and all responders concurred. The full RSAC approved the Working Group's recommendations for the final rule on 5/29/02. The next step is to complete and publish the final rule.

Tourist Railroad Report / Review of Regulatory Applicability (RSAC Task 96-4)

Summary: The Swift Rail Development Act of 1994 required FRA to submit a report to the Congress regarding FRA's actions to recognize the unique factors associated with these generally small passenger operations that often utilize historic equipment.

Statutory deadline: 9/30/95

Status: Report submitted to the Congress 6/10/96. The RSAC authorized formation of a Tourist and Historic Railroads Working Group 4/1/96. The Working Group held its initial meeting 6/17-6/18/96 and has monitored and assisted completion of the steam locomotive regulations task and will continue its oversight of task force activities, including the possible development of requirements for the training of steam locomotive operators and maintenance personnel. Planned future activities involve review of other regulations regarding possible adaptation to the safety needs of tourist and historic railroads.

Track Safety Standards (RSAC Task 96-2)

Summary: The Rail Safety Enforcement and Review Act (1992) required FRA to revise the Track Safety Standards, taking into consideration, among other things, such issues as continuous welded rail and excepted track. FRA chose to use the project to issue track safety standards for high speed train service and to update
safety standards addressing rail flaw detection and gage restraint measurement in light of products of research.

Statutory deadline: Final rule by 9/1/95.

Background: FRA published an ANPRM 11/6/92 and conducted workshops in the period 1/93-3/93. The RSAC accepted the task of preparing an NPRM on 4/2/96. The Track Safety Standards Working Group reported a draft NPRM to the full committee on 10/31/96. In balloting that concluded 11/21/96, RSAC voted to accept the Working Group report.

Status: Completed. NPRM was published 7/3/97 (62 FR 36138) (FRA Docket No. RST-90-1, Notice No. 5). Hearing held 9/4/97; comment period closed 9/15/97. Additional comment was invited regarding certain high-speed track geometry issues by notice of 12/12/97 (62 FR 65401) not later than 12/22/97. Final rule published 6/22/98 (63 FR 33991) (FRA Docket No. RST-90-1, Notice No. 8); effective 9/21/98.

Gage Restraint Measurement System amendment. Completed. The final rule amendment to the track safety standards which added Gage Restraint Measurement System (CRMS) standards was approved by the full RSAC and published 1/10/01(66 FR 1894) . On 1/3 1/01, FRA published a notice extending the effective date of the GRMS amendment to 4/10/01 (66 FR 8372). On 2/9/01, FRA published a notice delaying the effective date until 6/9/01, in accordance with the Regulatory Review Plan (66 FR 9676). The GRMS rule was subsequently reviewed within the Department and is final.

U.S. Locational Requirement for Dispatching of U.S. Rail Operations

Summary: New 49 CFR Part 241 would require all dispatching of railroad operations that occur in the United States to be performed in the United States, with certain exceptions.

Status: Completed. The interim final rule (new Part 241) 12/11/01, prohibited dispatchers located in foreign countries from dispatching railroad operations that occur in the United States (extraterritorial dispatching), with limited exceptions. The interim rule solicited comments from the public that would be reviewed before issuance of a final rule; FRA held a public hearing on 2/12/02. On 12/10/02, FRA published a final rule that generally prohibits railroads from using dispatchers located outside the United States to dispatch railroad operations in the United States ("extraterritorial dispatching") (67 FR 75938). The interim rule had permitted Canadian railroads to continue extraterritorial dispatching of four short lines in the United States while comments were gathered. Under the final rule, the Canadian railroads can continue to extraterritorially dispatch there for a 90-day period to permit the filing of waiver petitions. If a petition is filed within the transitional period, the railroads may continue to conduct the extraterritorial dispatching until FRA acts on the waiver petition. The final rule
also permits waivers to be granted for extraterritorial dispatching of cross-border operations in areas of the United States immediately adjacent to the border with Canada and Mexico to facilitate the hand-off of cross-border operations to domestic dispatchers. Finally, the final rule permits extraterritorial dispatching in emergency situations.

**HIGHWAY-RAIL CROSSING SAFETY**

(a) **Commercial Driver Disqualification - Railroad-Highway Grade Crossing Violation**

Summary: To enhance the safety of commercial motor vehicle (CMV) operations on our nation's highways and complete action initiated in response to the requirements specified in section 403 of the ICC Termination Act of 1995, the Federal Motor Carrier Safety Administration revised its regulations (49 CFR Parts 383 and 384) to require that CMV drivers who are convicted of violating Federal, State, or local laws or regulations pertaining to railroad-highway grade crossings be disqualified from operating a CMV.

Status: Completed. Final rule published on 09/02/99 (64 FR 48104).

(b) **Grade Crossing Signals (Inspection, Testing and Maintenance)**

Summary: FRA issued a final rule for inspection, testing and maintenance of automated warning devices 9/30/94, and the rule went into effect 1/1/95 (49 CFR Part 234). During the initial year, FRA worked with railroads and signal employees to disseminate information, conduct training, and identify any areas of ambiguity or weakness in the standards. At a technical resolution committee (TRC) meeting during the week of 3/13/95 that included participation by railroads, the Brotherhood of Railroad Signalmen, and States, several issues were identified that require clarification or refinement. An interim manual dated 4/14/95 incorporated the findings of the TRC.

Status: Completed. Interim final rule amendments published 6/20/96 (61 FR 31802). The final rule was adopted from the Interim Final Rule (66 FR 49557; 9/28/01).

(c) **Locomotive Visibility / Auxiliary Alerting Lights**

Summary: In 1991, FRA initiated a new phase of research on locomotive conspicuity in relation to safety at highway-rail crossings. The Amtrak Authorization and Development Act of 1992 mandated that the research be completed and that a regulation be issued to apply alerting lights to locomotives.

Statutory deadline: Final rule by 6/30/95.

Background: FRA published a "grandfathering rule" on 2/3/93 and
amendments on 5/13/94. After the research was substantially completed in early summer of 1995, FRA briefed the industry parties on the results, discussed options for regulatory action, and elicited additional information concerning railroads' progress in equipping their fleets. A Notice of Proposed Rulemaking was published on 8/25/95. The AAR and the ASLRA requested a technical conference to perfect the rule for final issuance, and that conference was held 11/28/95.

Status: Completed. Final rule was published 3/6/96 (61 FR 31802). Equipping of locomotives used as lead units at speeds exceeding 20 mph was required to be completed by 12/31/97, as provided by law.

(d) Private Highway-Rail Grade Crossings

Summary: The Secretary's Action Plan for Grade Crossing Safety (6/94) commits FRA to conducting a special safety inquiry on private crossings.

Status: Conducted workshop on possible guidelines 7/93; timing of further action to be determined.

(e) Ten Most Hazardous Crossings Report

Summary: The Appropriations Committees required submission of a report on the ten most hazardous highway-rail crossings in each state. The report was to be submitted jointly by FHWA and FRA.

Status: Completed. Report was submitted to the Committees on 11/20/02.

(f) Selection of Grade Crossing Automated Warning Devices

Summary: FRA published a Notice of Proposed Rulemaking 3/2/95 (60 FR 11649) and received over 3,000 written comments through 6/14/95.


(g) Use of Locomotive Horns (Whistle Bans)

Summary: Legislation enacted with the Swift Rail Development Act of 1994 required FRA to issue regulations providing for the use of train horns at highway-rail crossings.

Statutory deadline: Final rule 11/2/96 (most hazardous crossings), 11/2/98 (other crossings). Note: deadlines were superceded by legislation barring FRA from issuing a final rule before 7/1/01.

Background: This legislative mandate anticipated FRA follow up to Emergency Order No. 15, which addressed local whistle bans on the Florida East Coast Railroad between Jacksonville and Miami. FRA released a report on the
national impacts of local whistle bans on 6/1/95 and conducted an extensive program of public outreach to make communities aware of the forthcoming rulemaking and to seek information on supplementary safety measures that would support allowance of quiet zones in communities sensitive to train horn noise. Contacts were established with 160+ jurisdictions known to have whistle bans in place. FRA representatives met with or addressed forums of state and local officials and community groups. Met with AAR/BRS/AAHSTO/FHWA 12/13/95 to address technical specifications for 4-quadrant gates.

Numerous congressional offices encouraged FRA to continue outreach and data collection. FRA advised the Congress that the deadline for an initial final rule would not be met as a result. Immediately prior to adjournment, the 104th Congress enacted the FAA reauthorization bill (PL 104-264; 10/9/96), which included amendments to the original whistle ban legislation. In general, the legislation affirmed the latitude available to the Secretary to provide for phase-in of regulations and focus on safety results.

Status: NPRM published 1/13/00 (65 FR 2230) (Docket No. FRA-1999-6439, Notice No. 1). Written comments were due 5/26/00. FRA held 12 public hearings and a technical conference to receive oral comments. Received and reviewed more than 3,000 comments (combined for the NPRM and draft environmental impact statement). Labor, Health and Human Services Appropriations Act, 2001, prohibited issuance of final rule before 7/1/01 (Pub. L. No. 106-554; 12/21/00.) Preparing final rule.

(h) Department of Transportation's Technical Working Group (TWG)

Summary: The TWG was established to develop recommendations on new standards for the use and implementation of highway-rail grade crossing warning devices (cross bucks, lights, gates, grade separation). The FRA and the Federal Highway Administration (FHWA) are co-chairs of the Working Group, whose members include representatives of the Federal Transit Administration, the National Transportation Safety Board, the Association of American Railroads, the American Shortline and Regional Railroad Association, state transportation agencies, county transportation agencies, the supply industry and academia.

Status: Completed. The final report has been approved by the TWG and is now available at the FHWA web site (http://www.fhwa.dot.gov/safety/media/twg report.htm).

(i) Public Service Announcements (PSA)

Summary: The PSAs were developed with a $350,000 federal grant. Focus group sessions were completed in July 2000, and PSA concepts were reviewed and approved by representatives of FRA, OLI, the Association of American Railroads, the International Association of Police Chiefs and other Federal/State and industry...
partners. Production of the PSAs was completed by 12/31/00.

Status: Airing of the PSAs began in 02/01.

HAZARDOUS MATERIALS

(a) New Directions for Hazardous Materials Safety by Rail

Summary: The movement of hazardous materials throughout the railroad industry provides an excellent example of the dynamic interrelationship between shippers, carriers, freight car builders, repair companies, and Federal, State, and Tribal governments. Under authority delegated to us by the Secretary of Transportation, FRA administers a safety program that oversees the movement of hazardous materials (including dangerous goods), such as petroleum and chemical products and nuclear shipments throughout the Nation's rail transportation system. FRA also has authority to oversee the movement of a package marked to indicate compliance with a Federal or international standard, even if such a package does not contain a hazardous material. FRA’s current hazardous materials safety regulatory program and standards-related partnerships include the following items:

- Hazardous Materials Incident Reduction Program
- Tank Car Facility Conformity Assessment Program
- Spent Nuclear Fuel and High-Level Nuclear Waste Program
- Rulemaking, Approvals, and Exemptions
- Standards-Related Partnerships

(b) Rulemaking, Approvals, and Exemptions

(1) Tank Car Crashworthiness and Retest

Summary: Research and Special Program Administration Dockets HM-175A and HM-201 addressed further improvements in tank car crashworthiness, and adoption of advanced non-destructive testing to improve tank retest procedures, respectively.

Status: Completed. Final rules published 9/21/95 (60 FR 49048).

(2) Standards-Related Partnerships

Chapter 9, Article 906(1) and (2), of the North American Free Trade Agreement (NAFTA), states:

Recognizing the crucial role of standards-related measures in promoting and protecting legitimate objectives, the Parties shall... work jointly to enhance the level of safety and of the protection of human, animal, and plant life and health, the environment and consumers. . . . .the Parties shall, to the greatest extent practicable, make compatible their respective standards-related measures, so as to

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facilitate trade in a good or service between the Parties.

To accomplish the goals of NAFTA, the United States, Canada, and Mexico have agreed to develop standard-related measures, based on the United Nations Recommendations on the Transport of Dangerous Goods (orange book). One part of the standard concerns the design, construction, inspection, testing, and maintenance of tank cars. The development of the standard follows actions taken by the North American Free Trade Agreement, Land Transportation Standards Subcommittee (LTSS), Working Group on the Transportation of Dangerous Goods (Group 5) on June 11, 1998 in Montreal, Quebec, Canada. To meet this objective, Canada, Mexico, and the United States agreed to promote the development of an industry-sponsored standard-related measure for tank cars (North American Model Standard for Tank Cars [NAMS-TC]).

OTHER SAFETY PROJECTS AND PARTNERSHIP EFFORTS

Bridge Structural Safety

Summary: Following a survey of bridge conditions and railroad inspection practices, FRA determined that regulatory action is not necessary, but that FRA should continue to exercise an oversight role regarding bridge structural safety programs. FRA issued an interim statement of policy 4/27/95, with comments due 6/26/95.

Status: Completed. Comments support continued FRA partnership role. FRA issued a final bridge statement of policy for safety of railroad bridges that establishes suggested criteria for railroads to use to ensure the structural integrity of bridges that carry railroad tracks. The statement was published in the Federal Register on 8/30/00 (65 FR 52667).

Movable Bridges: A nationwide review of movable bridges has been completed. Also reviewing the enforcement manual on movable bridges. New technical training course started this year on movable bridges.

Note: On 2/12/96, the Administrator issued Emergency Order No. 19, which removed from service a bridge on the Tonawanda Island Railroad in New York State pending necessary structural repairs (61 FR 628; 2/16/96). In 12/16/99, the Administrator reissued Emergency Order No. 22, which removed from service a bridge on the Oregon Pacific Railroad in Oregon State pending inspection of repairs to assure safety (64 FR 71 844; 12/16/99). This Emergency Order was partially lifted by on 1/20/00 (65 FR 5018; 2/21/00).

Discolored Wheels

FRA has granted a master waiver of the Freight Car Safety Standards permitting continued use of discolored heat-treated, curved plate wheels, which
have superior resistance to thermal abuse. Data gathered under the waiver, together with results of analysis already provided, may support a permanent change in the regulation.

**Environmental Impacts**

FRA revised its Procedures for Considering Environmental Impacts to update or eliminate outdated references to programs or statutory authorities that no longer exist and to correct inconsistencies with the Council on Environmental Quality’s National environmental Policy Act implementing regulations. The revised procedures were published in the Federal Register on 5/26/99 (64 FR 28545).

**Hours of Service Electronic Recordkeeping**

Current hours of service record keeping uses paper and ink, but a major railroad has been given relief to keep electronic records. Other railroads have expressed interest, and similar waivers will involve similar issues. At FRA's invitation, the AAR submitted a petition seeking a master waiver for use of electronic record keeping. However, individual railroads have elected to proceed separately, and FRA is processing each on its merits. Permanent amendments to the recordkeeping and reporting requirements may be proposed. FRA is assisting railroads in developing electronic systems by providing guidance materials.

**Remote Control Locomotives**

On 5/15/00, FRA published a notice of a technical conference to examine the current status of safety issues related to use of remote control locomotives (65 FR 3 1056). The technical conference was held on 7/19/00. The Technical Conference focused on the changes in RCL operations that have occurred over the past five years. A Notice of Safety Advisory 2001-01, which establishes recommended minimum guidelines for the operation of remote control locomotives was published 02/14/01 (66 FR 10340).

FRA continues to work with interested parties on best practices. FRA is also closely monitoring training required by 49 CFR Part 240 and conducting surveillance of new remote control operations.

**Shared Use of General Railroad System - Joint Statement of Agency Policy**

Completed. FRA and the Federal Transit Administration (FTA) have been working together to develop a policy concerning safety issues related to light rail transit operations on the general railroad system, how the two agencies intend to coordinate use of their respective safety authorities, and the waiver process related to shared use operations. A proposed joint statement of policy was published 5/25/99 (64 FR 28238) with comments due on 7/30/99. Comment period extended
on 7/28/99 to 10/29/99 (64 FR 40931). Additional extension on 10/28/99 to 1/14/00 (64 FR 58124). FRA issued a final joint policy statement describing the extent of its statutory jurisdiction over railroad passenger operations and explaining how it will exercise its jurisdiction. The statement was published 7/10/2000 (65 FR 42526). (Docket No. FRA-1999-5685.)

**Shared Use of General Railroad System - FRA Jurisdiction Policy Statement**

Completed. FRA issued a proposed statement of agency policy on 1/1/99 (64 FR 59046) (FRA Docket No. FRA-1999-5685, Notice No. 4) describing the extent of its statutory jurisdiction over railroad passenger operations (which covers all railroads except urban rapid transit systems not connected to the general railroad system) and to explain how it will exercise that jurisdiction. Comments were due by 1/14/00. Final Policy Statement published 7/10/2000 (65 FR 42529).

**TOFC/COFC Securement**

Summary: Following a serious accident at Smithfield, N.C., on 5/16/94, FRA formed a partnership with major railroads and labor organizations to evaluate and improve securement of intermodal loads. A report to the Secretary dated 9/15/94 documented the initial results of that effort.

Status: FRA held a meeting on 2/22/95 that focused on an item-by-item discussion of the status and progress made within the industry with respect to the seven recommendations identified in the report to the Secretary. The AAR has established an Intermodal Equipment Handling Task Force that has developed a number of training aids. A follow up TOFC/COFC loading and securement safety survey was conducted during 1996. FRA conducted additional loading and securement field evaluations during July-August 1997. Joint training activity brought together railroads, TTX and FRA to maintain strong emphasis on compliance with AAR loading requirements. FRA continues to monitor securement of trailers and trucks in transportation and to work on this issue through SACP's on individual railroads. In 8/99, FRA inspectors began bi-regional team audits, with 18 inspections per team completed by 08/01. To date, the survey of intermodal loading facilities is progressing as planned. The deficiencies found are tracking at a rate similar to previous studies. As of 8/01/01, the teams had surveyed 7,636 railcars, 3,745 trailer platforms, and 10,872 container platforms. A total of 3,095 deficiencies were noted. Team audits were scheduled to continue another eighteen months. Joint training activity brought together railroads, TTX and FRA to maintain strong emphasis on compliance with AAR loading requirements. FRA continues to monitor securement of trailers and trucks in transportation and to work on this issue through SACP's on individual railroads. In 8/99, FRA inspectors began bi-regional team audits, with 18 inspections per team completed by 08/01. To date, the survey of intermodal loading facilities is progressing as planned. The deficiencies found are tracking at a rate similar to previous studies. As of 8/01/01, the teams had surveyed 7,636 railcars, 3,745 trailer platforms, and 10,872 container platforms. A total of 3,095 deficiencies were noted. Team audits were scheduled to continue another eighteen months. A mid-point report was completed 1/30/02. Looking to see if railroads are complying with AAR guidelines IC 113 7/06/98. Final report was scheduled for completion by 1/03 (action still pending).

**Train Dispatcher Training**

FRA submitted a report to the Congress on 1/5/95 regarding the functions of contemporary train dispatching offices. The report noted that traditional pools
of candidates for recruitment of train dispatchers are no longer adequate to the need. In partnership with the American Train Dispatchers Department/BLE (ATDD), FRA identified the need for a model train dispatcher training program.

Experts from Amtrak, the ATDD, the Burlington Northern/Santa Fe Railroad and FRA developed a list of elements for dispatcher training programs. Required competencies and training program elements have been abstracted from this effort for a model program. The RSAC was briefed on this effort on 3/24/97, with participants in the training task force indicating reluctance to attempt a "one size fits all" regulatory approach. More recent discussion in the RSAC has indicated a renewed interest by the ATDD in development of uniform minimum standards for dispatcher training and qualification.

In 05/01, the FRA Office of Research and Development published Understanding How Train Dispatchers Manage and Control Trains (DOT/FRA/ORD-01/02), which is available at http://www.fra.dot.gov/volpe/html/rndpubs.html.

SAFETY ADVISORIES/DIRECTIVES/BULLETINS

2003-01 Importance of Verifying Compatibility of Packaging Components when Haz Mat Commodity is Changed. This advisory recommends that all persons involved in the packaging and offering of hazardous materials verify the compatibility of all tank car components, such as valves and gaskets, to resist corrosion, permeability, premature aging, pitting, or embrittlement. Published 01/23/03 (68 FR 3304).

2002-03 Failures of 100-ton Truck Bolsters from National Castings of Sahagun, Mexico. This advisory recommends that all railroads and car repair shops adhere to the instructions provided in AAR’s maintenance advisory and early warning letters. AAR has identified a list of cars that may be equipped with the bolsters. Published 12/30/02 (67 FR 79686).

2002-01 Importance of Clear Safety Procedures - Highway-rail grade crossing warning systems. This advisory addressed the importance of clear, precise and unambiguous railroad safety procedures to ensure the safety of highway-rail grade crossing warning systems or wayside signal systems that are temporarily removed from service. Published 1/23/02 (67 FR 3258).

2001-3 Failures of Airbrake Angle Cocks from Ellcon-National. This advisory recommends the immediate replacement or installation of retrofit kit for Ellcon- National Model 7000 Thread-to-Thread and Model 7270 Thread-to-Flange Angle Cocks, at both ends of airbrake system. Published 05/01/01 (66 FR 21811).

2001-2 Structural Integrity of Cast Steel Draft Sills. This advisory establishes recommended minimal guidelines for inspection, and operation of Trinity Industries covered hopper cars, with draft sills manufactured by American
Steel Foundries. Also guidelines if car is involved in derailment and/or found defective. Published 03/12/01 (66 FR 14432).

2001-1 Remote Control-Locomotives. This advisory establishes recommended minimal guidelines for the operation of remote control-locomotives. Published 02/14/01 (66 FR 10340).

2000-3 Switching Operations. This advisory provides safety practices to reduce the risk of serious injury or death both to railroad employees engaged in switching operations and to the general public. Published 11/2/00 (65 FR 65895).

2000-2 Signal Units. This advisory recommends replacement of certain components in Harmon Industries' "Electro Code 4" and "Electro Code 4 Plus" intermediate signal units.

2000-1 Model B1 relays. This advisory asks railroads to inspect and test certain relays for which there is a concern regarding potential malfunction. Published 5/11/00 (65 FR 30474).

99-3 Securement of floor beam cross-members on RoadRailer trailers: Safety practices to prevent the highway tandem wheel on RoadRailer trailers from falling onto the rails on moving trains. Published 1 1/10/99 (64 FR 61377).

99-2 [Not issued].

99-1 Lifting or jacking of railroad equipment: Safety practices related to lifting or jacking of railroad equipment in order to remove trucks or repair other components on a piece of railroad equipment which requires individuals to work beneath railroad equipment while it is raised. Published 6/16/99 (64 FR 32300).

98-3 Safe Use of Prescription and Over-the-Counter Drugs: Safety practices for the safe use of prescription and over-the-counter drugs by safety-sensitive railroad employees. Published 12124/99 (63 FR 71334)

98-2 Emergency application of airbrakes: Safety practices to reduce the risk of casualties caused by failure to activate the available two-way end-of-train telemetry device (two-way EOT) to initiate an emergency brake application beginning at the rear of the train when circumstances require an emergency application of the train airbrakes. Published 6/5/98 (63 FR 30808).

98-1 Vision standards of certified locomotive engineers: Addresses the vision standards of certified locomotive engineers in order to reduce the risk of accidents arising from vision impaired engineers. Published 5/28/98 (63 FR 29297).
97-3 Authorization of train movements past stop indications of absolute signals: Safety practices to reduce the risk of accidents arising from conflicting train movements when train dispatchers and control operators authorize movements past a stop indication of an absolute signal. Published 9/18/97 (62 FR 49047).

97-2 Failure to properly secure unattended rolling equipment: Safety practices to reduce the risk of casualties from runaway locomotives, cars, and trains caused by failure to properly secure unattended rolling equipment left on sidings or other tracks. Published 9/18/97 (62 FR P9046).

97-1 Protection of trains and personnel from hazards caused by severe weather conditions: Safety practices to reduce the risk of casualties from train derailments caused by damage to tracks, roadbed and bridges resulting from uncontrolled flows of water and similar weather related phenomena. Note: This was amended on November 12, 1997, by revising the recommendations concerning the transmission of flash flood warning to train dispatchers or other employees controlling the movement of trains. Published 9/4/97 (62 FR 46794).

DIRECTIVES

97-1 Review of operational tests and inspection programs and review of train dispatching procedures in non-signaled territory: Safety practices to evaluate the integrity of all railroads' programs of operational tests and inspections to ensure that safety-critical information is accurately conveyed and acknowledged for operations in non-signaled Direct Train Control (DTC) territory. Published 6/30/97 (62 FR 35331).

97-2 Initiating emergency application of train airbrakes descending heavy grades: Safety practice to prevent run-away trains on heavy grades of 2 percent or greater by initiating emergency application of airbrakes whenever train speed exceeds maximum authorized speed by five miles or more. Published 2/27/97 (62 FR 9014).

BULLETINS

97-1 Loss of dynamic braking due to unintentional activation of emergency MU fuel-line cut-off device: Safety practices for certain locomotives equipped with emergency MU fuel-line cut-off devices located inside the locomotive control compartment at a location which enables the cutoff device to be activated unintentionally. Published 1/30/97 (62 FR 4569).

Unnumbered: Recommended safety practices for Direct Train Control Operations. Published 12/3/96 (61 FR 64191).
PENDING PETITIONS AND SUGGESTIONS FOR RULEMAKING

Petitions for Rulemaking

(FRA rules of practice (49 CFR Part 211) prescribe requirements that must be met by petitions for rulemaking. Some petitions do not contain all required information. FRA generally retains those petitions for further consideration, rather than dismissing them, so that the issues can be more fully developed).

93-2  11/5/93  BMWE Petition for Bridge Safety Standards
Summary: Requests issuance of rules for construction, maintenance, repair and inspection of structural components of railroad bridges.
Status: FRA published a final policy statement on bridge structural safety 8/30/00 (65 FR 52667). FRA determined that regulations are not necessary at this time. FRA continues to address bridge safety issues directly with individual railroads and through emergency orders. CLOSED.

94-1  5/19/94  BLE Petition for Positive Train Separation
Summary: Requests rulemaking to make changes to 49 CFR Part 236 (Rules, Standards and Instructions) to lower the speeds at which signal and train control systems are required, establish visibility standards for wayside signals, and require that at least two signals in advance display less than clear indications if a stop is required.
Status: This petition was referred to the PTC Working Group. With BLE participation, RSAC has focused on use of innovative technology to address the purposes of the petition. See Report of the RSAC to the Federal Railroad Administrator entitled Implementation of Positive Train Control Systems (September 1999).

96-1  8/22/96  UTU Petition Regarding HelperLink Technology
Summary: Requests regulations governing use, testing and calibration of electronic devices used to control automatic airbrakes on helper locomotive consists.
Status: This petition and issues regarding this technology were incorporated into Freight Power Brake rulemaking and were addressed in the final rule (~232.219(c); 66 FR4104, 4206; 1/17101). CLOSED.

98-1  12/23/97  BMWE Petition; Bridge Worker Safety Amendments
Summary: Requests elimination of use of body belts to conform to OSHA rule amendment.
Status: Interim Final Rule published 1/15/02 (67 FR 1903). Corrections published 3/12/02 (67 FR 11055) and 5/8/02 (67 FR 30819).

98-2  3/25/98  BMWE Petition for Crane Safety and Training of Crane Operators
Summary: Requests rulemaking through RSAC to address crane operator training, crane inspection, and load rigging and hoisting issues.
Status: Petition is pending consideration by the Roadway Equipment Task Force of the Track Safety Standards Working Group. Discussion in full RSAC indicated that informal consultations should assist FRA in describing need for and parameters of possible task. Members of Track Safety Standards Working Group have been requested to consult.

98-3  4/14/98  BLE Petition to Prohibit Operation of Locomotive in Position Opposite of Normal Status: The FRA Administrator responded to the petition letter on 05/5/98. Issue was handled in SACP.

98-4  3/20/98  UTU Petition for Exemption from Personal Liability Summary: Requests rulemaking to exempt all train and engine service employees from personal liability for violations of FRA safety regulations "for which such employees have no power or authority to comply." Alternately, FRA is requested to grant the employees the power to refuse to operate equipment which is not in compliance with Federal law. Status: Pending.

2000-8422  11/16/00  BLE Petition for Rulemaking for Remote Control Locomotives. Summary: BLE requests commencement of a rulemaking restricting use of remote control technology. Status: Safety Advisory 2001-1 was published 2/14/01. On March 11, 2003, the Transportation Trades Department, AFL-CIO, renewed this request.

2001-10494  8/14/01  UTU Petition to repeal 49 CFR 240.7. Summary: UTU requests that the FRA initiate a rulemaking to repeal 49 CFR 240.7 governing movement of locomotives by non certified personnel. Status: Pending.

Other Suggestions for Rulemaking

Locomotive Safety Standards Summary: AAR suggested by letter that FRA undertake a review and revision of the Locomotive Safety Standards. Status: RSAC was advised of the request, and FRA has noted the need to include this activity in future planning.

Training and Certification of Safety-Critical Employees Status: By letter of 5/18/00, UTU and BRS requested that this topic be considered by the RSAC. FRA has presented to RSAC information regarding current regulatory requirements and possible areas of exploration. Parties have been invited to assist in refining and developing the suggestion. Item is carried on RSAC agenda.

Safety Appliances Summary: Numerous railroads and manufacturers have noted the need to revise 49 CFR Part 231, the Railroad Safety Appliance Standards. NAFTA harmonization issues deserve consideration. Status: FRA staff had previously prepared a proposed revision to this part, and FRA has noted the need to include this activity in future planning.
MISCELLANEOUS

JURISDICTION OF ENVIRONMENTAL PROTECTION AGENCY AND OSHA OVER HAZARDOUS WASTES

Under the provisions of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. § 9601 et. seq.), as amended by the Superfund Amendment and Reauthorization Act of 1986 (P.L. No. 99-499), the Environmental Protection Agency has jurisdiction over railroads where a railroad has released or threatened to release into the environment hazardous substances, pollutants or contaminants. When such an event occurs, the EPA may respond by cleaning up and removing the said substances, for which the railroad is responsible. In addition, the EPA has authority to impose fines under the said Act.

The Federal OSHA also has jurisdiction over hazardous waste operations and emergency response in the railroad industry. The OSHA regulations appear in 29 C.F.R. Part 1910. Specifically, § 1910.120 covers protection of employees involved in hazardous waste operations and emergency response. These protections include training, personal protective equipment, monitoring, materials handling, decontamination procedures, etc.34/


RAILROAD REVITALIZATION AND REGULATORY REFORM ACT

One section of the Act permits any railroad to apply for financial assistance for facilities. The Secretary of Transportation shall act upon any such application within 6 months after receipt of all required information pertinent to such application. The Secretary may approve such application if he determines that to do so would be in the public interest. Special emphasis in the application is placed on track improvement. (49 U.S.C. § 825(b)(1) (C) and (D). In making this latter determination the Secretary shall consider (a) the availability of funds from other sources, (b) the interest of the public in supplementing such other funds as may be available, and (c) the public benefit to be realized from the project to be financed in relation to the public costs of such financing. The Secretary shall give highest priority to those applications for projects which will enhance the ability of the applicant carrier to provide essential freight service. Moreover, among applications which would return equal public benefits, the Secretary shall assign highest priority to applications for assistance for providing safety improvements and signals, including underpasses and overpasses at railroad crossings at which injury or death has frequently occurred or is likely to occur.

34/ OSHA was discussed in a previous section in greater detail.
49 U.S.C. § 825(A) and (b)

AUTHORIZING FOR INVESTIGATION AND TESTING OF SAFETY DEVICES

The Secretary of Transportation is authorized to investigate, test, and report on the use and need of appliances or systems intended to promote the safety of railway operations. The appliances or systems to be tested may be furnished to the Secretary for that purpose free of charge to the Government. Additionally, the Secretary is authorized to employ such persons as are familiar with the subject to be investigated and tested.

49 U.S.C. § 20504

AMTRAK DUMPING OF HUMAN WASTE

In 1990, Congress exempted Amtrak from any federal, state or local law which would prevent the railroad from discharging human waste. In doing so, Congress required that all new inter-city rail passenger cars manufactured on or after the date of enactment of this law, shall be built to provide for the discharge of human waste only at servicing facilities. Subject to the appropriation of funds from Congress, Amtrak is required to retrofit its inter-city cars that were manufactured after May 1, 1971, that provide for the discharge of human waste either at (1) servicing facilities, or (2) along railroad right-of-way (except stations) only after the wastes have been treated. The retrofit program shall be completed within 6 years. Within 1 year of the date of enactment, Amtrak is required to submit a plan to Congress which sets forth the schedule and projected costs of completion of the retrofit program. The effective date of this legislation applies retroactively to 1976. Therefore, it attempts to exempt Amtrak from all regulatory actions relating to dumping by any governmental entity dating from 1976.

P.L. No. 101-610, § 601(a)(1)

RAILROAD POLICE OFFICIERS

A railroad police officer who is employed by a railroad has been given the same authority to enforce the laws of any jurisdiction in which the rail carrier owns property to the same extent as a police officer properly certified or commissioned under the laws of that jurisdiction. This means that a police officer hired by the railroad has the power to arrest other railroad employees. Under the regulation adopted by FRA, the railroad must notify every state where the railroad police officers may operate.

P.L. No. 101-647, § 2205

49 C.F.R. Part 207
CLEAN AIR ACT

Clean Air Act Amendments of 1990 contained one specific provision relating to the railroads. The Environmental Protection Agency is required to issue standards for new locomotive engines within 5 years from the date of enactment to achieve the greatest possible reduction to ozone or carbon monoxide emission levels, considering cost, safety, and energy factors. The states are preempted from regulating new locomotives or new engines used in locomotives as related to emissions. (This does not correct the problem which exists with emissions from older locomotives).

P.L. No. 101-549, § 222

AMERICANS WITH DISABILITIES ACT

What is Prohibited

Employers cannot discriminate against persons with disabilities in regard to any employment practice, or any terms and conditions of employment, including job recruitment and advertising, hiring, promotion, transfer, layoff, termination, rehiring, rate of pay, job assignments, leaves of absence, fringe benefits, training and social activities. 29 CFR § 1630.4.

What is Protected

The ADA prohibits discrimination against "qualified individuals with disabilities." § 1630.4. A "qualified individual with a disability" is "an individual with a disability who satisfies the requisite skill, experience, education and other job-related requirements of the employment position such individuals holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position." 29 CFR § 1630.2 (m).

What Does "Disability" Mean under the ADA?

The term "disability" means, with respect to an individual-

(A) a physical impairment that substantially limits one or more of the major life activities of such individual;

(B) a record of such an impairment; or

(C) being regarded as having such an impairment

42 U.S.C. § 12102 (2). Either one of these three prerequisites will trigger the statute.
What is a Physical Impairment That Substantially Limits a Major Life Activity?

1. What is a Physical Impairment?

Physical impairment is any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of several body systems, or any mental or psychological disorder. 29 C.F.R. § 1630.2.

The disorder or condition must relate to a diagnosable physical or mental impairment. Attempts to alleviate the disorder through medical means do not remove a person's disabled standing, such as a person with a hearing problem who alleviates the problem with a hearing aid. 29 C.F.R. Part 1630, Appendix, § 1630.2 (h). However, having a physical impairment alone does not trigger the statute, since the impairment must substantially limit a major life activity.

2. What constitutes a substantial limit on major life activities?

After the determination is made that there is a physical or mental impairment, the next test becomes whether the impairment substantially limits a major life activity. See 42 U. S. C. § 12102 (2) (a). Major life activities are fundamental actions which the average person in the general population can perform with little or no difficulty. These activities include caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, sitting, standing, lifting, reaching, and working. 29 C.F.R. § 1630.2(i). When one of these activities is "substantially limited" by an impairment, the statute is triggered.

What Amounts to Discrimination Under the ADA?

Once the determination is made that an individual has a protected disability, as a general rule, "[n]o covered entity shall discriminate against a qualified individual with a disability because of the disability of such individual in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment." 42 U.S.C. § 12112(a).

Generally, the determination becomes whether the individual meets the requirements for the job, like adequate training, licenses, and skills. If the disabled individual is qualified, the employer must make a "reasonable accommodation" for the physical impairment so the individual can perform the essential job functions.

What is a Reasonable Accommodation?

If the employee is found to be qualified, but cannot perform an essential function of the job, the ADA still requires the employer to make "reasonable accommodations to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, unless such covered entity can demonstrate that the accommodation would impose an undue hardship on the operation of the business of such covered entity." 42 U.S.C. § 12112 (b) (5) (A). Moreover, the employer cannot deny "employment opportunities to a job applicant or employee who is an otherwise qualified individual with a disability, if such denial is based
on the need of such covered entity to make reasonable accommodation to the physical or mental impairments of the employee or applicant" 42 U.S.C. § 12112 (b) (5) (B).

The term "reasonable accommodation" includes reassignment to a vacant position. 42 U.S.C. § 12111 (a). However, an employer is not required to reassign a disabled employee where the change involves a promotion or bumping another employee out of a position to create a vacancy for the individual with the disability. See 49 C.F.R., Part 1630, Appendix, § 1630.2 (o). Eckles v. Conrail, et. al., 94 F.3d 1041 (7th Cir. 1996), cert. denied March 24, 1997.

FEDERAL HIGHWAY ADMINISTRATION REGULATIONS COVERING HEALTH QUALIFICATIONS AND TESTS FOR DRIVERS OF RAILROAD OWNED TRUCKS

Under regulations of the Federal Highway Administration, a railroad worker who drives a motor vehicle for the carrier, must meet minimum physical qualifications in addition to a written exam, road test, and have an acceptable driving record. This includes an extensive annual medical physical exam. Part of the requirements allow the railroads to impose an alcohol and drug test on the employee.

The motor vehicles covered by this part include only those having a gross weight, including its load, of more than 10,000 pounds.

EXECUTIVE ORDER 12866: REGULATORY PLANNING AND REVIEW

A. **Regulatory Philosophy and Principles.** The executive order sets forth a statement containing regulatory philosophy and principles to which agency should adhere.

B. **Review of Existing Regulations.** Agencies are required to submit to the Office of Management Budget a program for periodic review of existing significant regulations to determine whether to modify or eliminate them. Rules to be reviewed must be included in the agency’s Plan. Agencies must also identify legislatively mandated regulations that are unnecessary or outdated.

C. **Public Participation.** Before issuing an NPRM, agencies are encouraged to seek involvement of those intended to benefit or be burdened. Agencies should provide a meaningful opportunity to comment, including a 60-day comment period in most cases. Where appropriate, agencies must use consensual mechanisms.
D. **OMB Review.** All significant rulemakings must be submitted to OMB for review before issuance. Time frames for completion of such review are established in the Order.

E. **Assessment of Economically Significant Rulemakings.** Agencies are required to prepare an assessment, including analyses, of benefits and costs, quantified to the extent feasible, of the anticipated action and potentially effective and reasonable feasible alternatives, including an explanation of why the planned action is preferable.

F. **Disclosure of Contacts.** Procedures are established for disclosure of communications with people outside of the executive branch.

**DOT ORDER 2100.5: REGULATORY POLICIES AND PROCEDURES (1979)**

A. **Coverage.** This order applies to all DOT rulemakings, including those that establish conditions for financial assistance, but excludes formal rulemakings and those related to military or foreign affairs functions, agency management or personnel, and Federal procurement. Special provisions are also made for “emergency” rulemakings.

B. **Objectives.** It sets forth objectives for DOT rulemaking (e.g., necessity, clarity).

C. **Regulations Council.** It establishes a Department Regulations Council, chaired by the Deputy Secretary, vice-chaired by the General Counsel, and made up of the heads of the Secretary of Transportation offices and the operating administrations. The Council can review and make recommendations concerning regulatory review programs (see ¶ G), significant rulemakings (see ¶ E), and the Regulatory Policies and Procedures. It can also set up task forces or require studies if necessary.

D. **Initiating Office Responsibilities.** It establishes responsibilities for the offices initiating regulations to do such things as coordinate their proposals with other operating administrations within the Department.

E. **Significant Rulemaking Review.** It requires the submission of all significant rulemakings to the Office of the Secretary for approval by the Secretary. (A significant regulation is essentially one that is costly or controversial.)

F. **Economic Analyses.** It requires an economic analysis for all proposed (including ANPRMs) and final rulemaking actions, not just for major (very costly) rulemakings. For major rulemakings, the document is a “Regulatory Analysis”; for non-major, it is a “Regulatory Evaluation.” Where the impact is so minimal that a full Evaluation is not warranted, a statement to that effect and the basis for it
is included in the rulemaking document.

G. **Reviews.** It requires the periodic review of existing regulations to determine whether they should be revised or revoked.

H. **Public Participation.** It sets forth some specific procedures to ensure a full opportunity for public participation; for example, it provides for a comment period of at least 45 days on nonsignificant regulations and 60 days on significant regulations, unless the rulemaking document states the reasons for a shorter time period. It also requires that, to the maximum extent possible, even when not statutorily mandated, opportunity for the public to comment on proposed rules should be provided, if it could be expected to result in useful information.

I. **Agenda.** It requires the development and issuance of a semi-annual regulations agenda.

**DOT ORDER 2100.2: PUBLIC CONTACTS IN RULEMAKING (1970)**

The Order essentially discourages oral communications from the time just prior to the issuance of a notice until the time the final rule is issued. If such contacts occur, they must be summarized in writing and placed in the public rulemaking docket. (If the contact occurs before the issuance of the NPRM, it may be summarized in the preamble to the NPRM).

**RAIL SAFETY ADVISORY COMMITTEE**

Under the Federal Advisory Committee Act, agencies are given the authority to create advisory committees to make recommendations for proposed regulations. The FRA, under that Act, on March 25, 1996, created the Rail Safety Advisory Committee. It is comprised of 48 representatives from 27 organizations. Rail labor and rail management have equal numbers of members on the RSAC. It will operate by negotiating a consensus on any particular safety subject matter that is delegated to it by the administrator. Unless all the members of RSAC agree to a particular task, it will not be considered by RSAC nor will it become a recommendation. However, in all cases where a working group established by RSAC unanimously agree to a particular rule, it will be automatically forwarded to the FRA for consideration, even if there is no unanimous consent by the full RSAC.
SUMMARY OF THE SWIFT RAIL DEVELOPMENT ACT OF 1994

1. The Authorization for Appropriations

Funds are authorized for 4 fiscal years (instead of 2 as has been the case since 1970).

2. Hours of Service Pilot Project

The railroads and all labor organizations representing any class or craft of directly affected covered service employees may jointly petition the Secretary for approval of a waiver of the Hours of Service Act requirements for the purpose of establishing one or more pilot projects to demonstrate alternatives to existing requirements, including maximum on-duty and minimum off-duty periods.

By January 1, 1997 FRA is required to report to Congress as to the effectiveness of the pilot projects and to recommend appropriate legislation for changes in the law.

3. Biennial Reporting

FRA's annual reporting requirements will be extended to a 2 year requirement.

4. Report on Bridge Displacement Detection

The Secretary is required to issue a report within 18 months concerning action that has been taken with regard to railroad bridge displacement detection systems.

5. Track Safety

In issuing track safety regulations, September 1, 1995 FRA is required to cover cold weather installation of continuous welded rail, and to consider whether or not to issue regulations that relate to the problem of track shelling in the detection of internal rail defects.

6. Residence of Amtrak Employees

In 1990 Congress prohibited an employee to be taxed by any state or local jurisdiction except where the employee resides. This change provides that the 1990 amendment applies to all periods of time before and after that enactment.

7. Institute for Railroad Safety

The Secretary, within one year, in conjunction with a university or college, shall create an Institute for Railroad Safety. The Institute shall research, develop, fund, and test measures to reduce rail fatalities and injuries. One Million dollars are authorized for FY 1996 through 2000.

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35/ This statute is summarized only to show that the FRA still has not promulgated all of the regulations mandated by this law.
8. **Warning to Public Regarding Vandalism and Trespassing Civil Liability**

The Secretary shall encourage railroads to warn the public about potential liabilities for violation of the regulations related to vandalism of railroad signs, devices and equipment and to trespassing on the railroads.

9. **Railroad Car Visibility**

The Secretary shall review current rules with respect to rail car visibility. If it is established that enhanced rail car visibility would likely improve safety in a cost-effective manner, a rulemaking shall be initiated to acquire enhanced visibility for newly manufactured and remanufactured railcars. The Secretary shall consider at a minimum:

- visibility from the perspective of a automobile driver;
- whether certain rail car paint colors should be prohibited or required;
- the use of reflective materials;
- the visibility of lettering on rail cars;
- the effect of any enhanced visibility measures on the health and safety of train crew members; and
- the cost-benefit ratio of any new regulations.

Any specific requirement on any category of trains or operations may be excluded if the Secretary determines that it is in the public interest and is consistent with rail safety.

10. **FRA/OSHA Coordination**

The Secretary shall consult with the Secretary of Labor on a regular basis to assure all laws affecting working conditions for railroad employees are appropriately enforced to ensure a safe working environment for the rail industry.

11. **Positive Train Control System Report**

The Secretary shall submit a report by December 31, 1995, to the Senate and House regarding development, deployment, and demonstration of positive train control systems.

12. **Passenger Car Safety Standards**

The Secretary shall issue regulations covering passenger car safety. They shall address, at a minimum, crash-worthiness, interior features (including luggage restraints, seat belts, and exposed surfaces) that may affect passenger safety; maintenance and inspections of cars; emergency response procedures and equipment; and any operating rules and conditions that directly affect safety. Some or all of the standards shall apply to cars existing at the time of the issuance of the regulations. The initial standards shall be issued within 3 years, and final regulations shall be promulgated in 5 years.
13. **Contract and Grant Authority of the Secretary**

The Secretary is authorized to enter into contracts which may be necessary or appropriate to carry out the functions of the FRA.

14. **Tourist Railroads**

In prescribing regulations that cover tourist, historic, scenic, or excursion railroads, the Secretary shall take into consideration any financial, operational, or other factors unique to such carriers. A report shall be submitted to Congress on actions taken by September 30, 1995.

15. **Authorization for Appropriations covering Operation Lifesaver**

Funds for Operation Lifesaver, Inc. are authorized as follows: $300,000 for FY 1995; $500,000 for FY 1996; and $750,000 for FY 1997.

16. **Railroad Trespasser and Vandalism Prevention**

The Secretary shall evaluate current laws regarding trespassing on railroad property and vandalism, and develop a model prevention strategy enforcement law to be used by the states. The evaluation and review shall be completed in one year. Further, the Secretary shall develop an outreach program to improve communications regarding trespassing and vandalism problems on the railroads. In 18 months the Secretary shall develop and make available to the states and local governments model legislation providing penalties for vandalism and for trespassing.

17. **Emergency Notification of Grade Crossing Problems**

The Secretary shall conduct a pilot program to demonstrate an emergency notification system utilizing a toll free telephone number for the public to use for conveying to railroads information concerning malfunctions or other safety problems at grade-crossings. The pilot program shall include crossings in at least two states; include provisions for public education and awareness; and post information at the crossings describing the emergency system and instructions on its use. The pilot program should be completed within 24 months, and a report shall be submitted to Congress not later than 30 months as to the effectiveness of such emergency notification systems.

18. **Audible Warning at Grade Crossings**

The Secretary shall prescribe regulations requiring that a locomotive horn shall be sounded while each train is approaching and entering a grade crossing. The Secretary may except from the requirement any rail operations or categories of crossings that the Secretary determines not to present a significant risk to loss of life or injury; for which the horn warning is impractical; or there exists supplementary safety measures to fully compensate for the absence of the locomotive horn. The "supplementary safety measures" must be an effective substitute for the locomotive horn which prevents movement over a
crossing (such as adequate median barriers that prevent movement around crossing gates). The following do not constitute supplementary safety measures: Standard traffic control devices such as reflectorized crossboxes, stop signs, flashing lights, flashing with gates that do not completely block travel. Any supplementary measures must be applied to all grade crossings within a specified distance along the railroad in order to be excepted.

No such waiver or exemption may be granted unless an application is submitted jointly by the railroad carrier and by the appropriate traffic control authority or law enforcement authority. No waiver will be granted unless the application demonstrates that the safety of the highway users will not be diminished.

In order to promote the quiet of communities, the Secretary may order the railroad carriers to temporarily cease the sounding of the locomotive horns at such crossings. Prior to such approval, any such measures shall have been subject to testing and evaluation.

By regulation, the following crossings may be subject in whole or in part to the regulations regarding locomotive horns and alternative supplementary safety measures: Private grade crossings; pedestrian crossings; crossings utilized primarily by non-motorized vehicles, and other special vehicles.

The regulations under this section shall be issued not later than 24 months covering those crossings which in the judgment of the Secretary pose the greatest safety hazards. The remaining regulations to the other categories of crossings shall be issued not later than 48 months.

In the regulations which are issued, the Secretary shall include a concise statement of the impact of such regulations on the policy of Congress to have national uniformity of rail safety regulations.