

enforce its requirements. (See section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements, Particulate matter.

Note: Incorporation by reference of the State Implementation Plan for the State of California was approved by the Director of the Federal Register on July 1, 1982.

Dated: July 23, 1998.

Clyde Morris,

Acting Regional Administrator, Region IX.

Part 52, chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 52—[AMENDED]

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 et seq.

Subpart F—California

2. Section 52.220 is amended by adding paragraphs (c)(184)(i)(C)(2) and (254)(i)(F) to read as follows:

§ 52.220 Identification of plan.

* * * * *

- (c) * * *
- (184) * * *
- (i) * * *
- (C) * * *

(2) Regulation 6, adopted on December 19, 1990.

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- (254) * * *
- (i) * * *

(F) Bay Area Air Quality Management District.

(I) Regulation 5, adopted on November 2, 1994.

[FR Doc. 98-23817 Filed 9-3-98; 8:45 am]
BILLING CODE 6560-50-P

DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

49 CFR Part 220

[Docket No. RSOR-12; Notice No. 5]

RIN 2130-AB19

Railroad Communications

AGENCY: Federal Railroad Administration (FRA), DOT.

ACTION: Final rule.

SUMMARY: The Federal Railroad Administration (FRA) amends its radio standards and procedures to promote

compliance by making the regulations more flexible; to require wireless communications devices, including radios, for specified classifications of railroad operations and roadway workers; and to retitle this part to reflect its coverage of other means of wireless communications such as cellular telephones, data radio terminals and other forms of wireless communications used to convey emergency and need to know information.

This final rule is based upon recommendations from a rail industry and labor working group convened by FRA and upon review of comments received in response to the June 26, 1997 notice of proposed rulemaking (62 FR 34544).

DATE: Effective Date: This rule is effective January 4, 1999. **Compliance Dates:** Sections 220.9 and 220.11 are effective July 1, 1999 for each railroad that:

- (1) provides commuter service in a metropolitan or suburban area;
- (2) provides intercity passenger service; or
- (3) had 400,000 or more annual employee work hours in 1997.

Sections 220.9 and 220.11 are applicable July 1, 2000 for each railroad that had fewer than 400,000 annual employee work hours in 1997.

ADDRESSES: Any petition for reconsideration should be submitted in triplicate to Ms. Renee Bridgers, Docket Clerk, Office of Chief Counsel, Federal Railroad Administration, 400 Seventh Street, S.W., Washington, D.C. 20590.

FOR FURTHER INFORMATION CONTACT: Gene Cox, Operating Practices Specialist, Office of Safety, FRA, 400 Seventh Street S.W., Washington, D.C. 20590 (telephone: 202-493-6319); Dennis Yachechak, Operating Practices Specialist, Office of Safety, FRA, 400 Seventh Street S.W., Washington, D.C. 20590 (telephone: 202-493-6260); or Patricia V. Sun, Trial Attorney, Office of Chief Counsel, FRA, 400 Seventh Street S.W., Washington, D.C. 20590 (telephone: 202-493-6060).

SUPPLEMENTARY INFORMATION:

FRA's 1994 Report to Congress

FRA first issued railroad radio standards and procedures (49 CFR Part 220) in 1977. In 1992, in section 11 of the Rail Safety Enforcement and Review Act (RSERA), Pub. L. No. 102-365, 106 Stat. 972, Congress required the Secretary of Transportation to conduct an inquiry into Part 220 procedures. As part of its inquiry, FRA conducted a field investigation of current voice communications technology and practice, held three Roundtable

discussions on advanced train control technologies, published a notice of special safety inquiry (59 FR 11847; March 11, 1994), conducted a public hearing on voice radio communications, contracted with the Department of Commerce's Institute for Telecommunications Sciences for a technical evaluation of advanced train control systems, and consulted with other agencies within DOT and with staff of the Federal Communications Commission.

In July 1994, FRA published its Report to Congress on Railroad Communications and Train Control. FRA concluded that railroad radio communications were generally good and had steadily improved since FRA's last major study in 1987. However, compliance with the standards and procedures in Part 220 was poor, and employees continued to report problems with radio equipment. (FRA's June 26, 1997 notice of proposed rulemaking, discussed below, details the technology application and utilization problems (62 FR 34544-45) uncovered during the inquiry.) Based on these findings, FRA committed to revising Part 220 to make the regulations more flexible.

Railroad Safety Advisory Committee's Review of Part 220

In 1996, FRA established the Railroad Safety Advisory Committee (RSAC or the Committee) to implement a more consensual approach to rulemaking. RSAC is comprised of 48 representatives from 27 member organizations, including railroads, labor groups, equipment manufacturers, state government groups, public associations, and two associate non-voting representatives from Canada and Mexico. To address specific tasks, such as railroad communications, RSAC formed standing or temporary subcommittees, or working groups, comprised of knowledgeable persons from the organizations represented on RSAC. The Railroad Communications Working Group (Working Group or Group) was comprised of representatives from the following organizations:

- American Public Transit Association (APTA)
- The American Short Line Railroad Association (ASLRRA)
- Association of American Railroads (AAR)
- Brotherhood of Locomotive Engineers, American Train Dispatchers Department (BLE)
- Brotherhood of Maintenance of Way Employees (BMWE)
- Brotherhood of Railroad Signalmen
- Burlington Northern Santa Fe
- Canadian Pacific Rail System
- Consolidated Rail Corporation (Conrail)
- CSX Transportation, Inc.

FRA
International Brotherhood of Electrical
Workers
National Railroad Passenger Corporation
(AMTRAK)
Norfolk Southern Corporation (NS)
Railway Progress Institute
Transportation Communications
International Union
United Transportation Union.

In its Task Statement (Task No. 96-3) to the Working Group, RSAC charged the Group to report back on the following issues:

1. all matters relating to revision of the existing standards, including data required for regulatory analysis;
2. communications needs in support of train operations;
3. communications needs in support of switching operations; and
4. the role of communications capability in emergency preparedness, including passenger service.

In a series of meetings, the Working Group examined extensive data, debated how to improve compliance with FRA radio standards and procedures, and considered whether to mandate radios and other forms of wireless communications to convey emergency and need to know information. In 1997, the Working Group achieved consensus on recommendations to amend Part 220, which the RSAC subsequently approved by formal ballot. On June 26, 1997, FRA published a notice of proposed rulemaking (NPRM) [62 FR 34544] based on the Working Group's recommendations.

Summary of Principal Communications Requirements in the NPRM

FRA proposed to vary communication equipment standards and implementation periods according to railroad size, providing small railroads more flexibility in recognition of their unique concerns. Small railroads were defined as those with fewer than 400,000 annual employee work hours (see the Regulatory Flexibility Act analysis below for further discussion of how small entities are defined in this part), and large railroads were defined as those with 400,000 or more annual employee work hours. This reporting cut-off is used in 49 CFR Parts 217 and 219 (Railroad Operating Rules and Control of Alcohol and Drug Use, respectively).

More communications equipment would be required on trains operated by large railroads than on those operated by small railroads. Large railroads would be required to equip each train with a working radio in each occupied controlling locomotive and with a means of redundant working wireless

communications. A working radio is one that can communicate with the railroad's control center from any location within the rail system (through repeater stations, if necessary), with the exception of limited segments of territory where topography or transient weather conditions prevent effective communications. In the case of joint operations on another railroad, the radio must also be able to reach the control center of the host railroad. For small railroads, each train's communication equipment requirements would be determined by a variety of factors, including whether the train transports passengers, hauls hazardous materials, engages in joint operations with large railroads, or operates above specified speeds.

For roadway workers, communication equipment requirements would also vary according to the size of the railroad. Large railroads would be required to equip maintenance-of-way equipment operating without locomotive assistance with a working radio. If multiple units are traveling together, only one unit would need to be equipped. Each maintenance-of-way work group would also be required to have intra-group communications capability. Each employee designated by the railroad to provide on-track safety for a roadway work group, and each lone worker, would be required to have immediate access to a working radio.

Small railroads would have to provide each employee responsible for on-track safety and each lone worker with immediate access to working wireless communications unless railroads do not operate in excess of 25 miles per hour. A railroad, regardless of size, would be excepted from these roadway worker communication requirements whenever the roadway work location is inaccessible to trains or has no through traffic or traffic on adjacent tracks when roadway workers are present.

In addition to the proposed equipment requirements, FRA would require railroad employees to notify the railroad's control center, using the quickest means of communications available, of emergency conditions that could result in death or injury, damage to property, or serious disruption of railroad operations. FRA also proposed to require railroad employees to test radio and redundant wireless communication equipment as soon as practicable before the beginning of their work assignment, and to remove inoperative equipment from service upon detection. The NPRM also proposed a retention period for copies of mandatory directives.

Discussion of Comments

By August 25, 1997, the closing date for the comment period, FRA had received comments from the following parties, many of whom were represented in the Working Group:

APTA
ASLRRA
AAR
BLE
BLE, Local Chairman 112 (BLE 112)
BLE, General Committee of Adjustment,
Southeastern Pennsylvania Transportation
Authority (BLE SEPTA)
BMWE
Conrail
Duluth, Missabe and Iron Range Railway
(DMIR)
Railtex
NS
Union Pacific Railroad Company (UP)

Comments that were addressed to specific sections of the NPRM are discussed in the section-by-section analysis. In reviewing the comments, five major issues emerged, which are discussed below.

(1) Coverage

The NPRM defined a working radio as one that can communicate with the railroad's control center from any location within the rail system (through repeater stations, if necessary), with the exception of limited segments of territory where topography or transient weather conditions temporarily prevent effective communications. In the case of joint operations on another railroad, the radio must also be able to reach the control center of the host railroad. FRA requested comments on whether the final rule should allow exclusions in communications coverage where the cost of placing additional repeater stations to prevent dead spots would be significant in relation to potential benefits.

FRA received the most comments on this issue. Coverage is a significant issue for many western railroads because of their greater territory and more diverse terrain.

BLE SEPTA commented that coverage exclusions should only be considered on territory without passenger or hazardous materials traffic, or on a case-by-case waiver basis. Factors such as installation cost, topography or frequency of use should not determine coverage limits, since quick communication is needed whenever a potential disaster strikes. BMWE also opposed allowing railroads subject to the NPRM to define additional coverage limits. BMWE commented that the safety risks associated with operating without communications capability remain the same regardless of

topography, and that cost issues had been adequately addressed by the NPRM's exclusion of railroads with fewer than 400,000 annual employee work hours and allowance for temporary fluctuations due to weather or terrain.

DMIR, on the other hand, commented that FRA needed to clarify what communications capability would be required for each piece of on-track equipment and for intra-group communication. While DMIR's present portable radios could communicate with other nearby radios, there were areas on its system where topography prevented these radios from being able to reach the dispatcher. DMIR estimated that providing each lone worker with a portable radio capable of reaching the dispatcher would cost the railroad approximately \$200,000 (ten additional base stations, six towers and forty more portable radios).

UP commented that it would not be cost effective or practicable to design and implement a wide area system with 100% coverage all of the time. Instead, UP suggested that FRA define its coverage requirements using common terminology such as "90% of the territory is covered 90% of the time" since this would reduce future waiver applications. With respect to the proposed communications requirements for roadway workers in § 220.11, UP noted that portable radios do not provide the same coverage as locomotive radios because of differences in transmitted power, antenna height, and antenna efficiency and therefore could not be expected to communicate with the control center from anywhere on the right-of-way.

AAR commented that the preamble's implied requirement to construct and install new base stations was not agreed to by the Working Group, contained in the rule text or analyzed in the regulatory impact analysis. ASLRRRA supported AAR, adding that it would be cost-prohibitive to require all railroads to install repeater stations to eliminate dead spots and provide complete radio coverage. ASLRRRA also commented that the Working Group had never voted or reached consensus on this issue because of the unavailability of data demonstrating the safety benefits of full coverage.

The issue of "coverage" is separable into two dimensions. The first has to do with the ability of mobile radios (mounted semi-permanently within the cabs of locomotives, on-track equipment or trucks assigned to roadway workers) to transmit and receive from any place along the length of a railroad right-of-way. Major railroads maintain

thousands of repeater stations that facilitate communication with control centers from such locations. However, even the most complete of the current repeater station arrays may be unable to receive from or transmit to mobile radios at isolated (localized) sites such as long tunnels, at the base of cliffs, or at certain locations within gorges. The working group did not discuss, and FRA did not intend to propose, that every such "dead spot" be remedied, since this could require the expenditure of large sums of money to place repeating stations where no commercial power is available in order to yield very modest increases in communication capability. The final rule requires that radio coverage of all territories be provided (as is generally the case today) with the following exceptions: (a) tunnels or other localized places of extreme topography; and (b) temporary lapses of coverage due to atmospheric or topographic conditions.

FRA also recognizes that certain existing "dead spot" locations may warrant further study for special treatment. Examples may include very long tunnels where an engine fire or derailment could create an immediate need for rescue by a relief train. One commentator in this proceeding, BLE Local 112, suggested that this final rule expressly mandate such coverage. However, this proceeding has focused on the equipping of trains and provision of communications capability to roadway workers, rather than the density of the communications infrastructure. Accordingly, FRA does not have available the data that would be needed to resolve these issues in this final rule. To the extent passenger operations are conducted through long tunnels, FRA will expect railroads to address communications needs in formulating plans under the new requirements for Passenger Train Emergency Preparedness (64 FR 24632; May 4, 1998).

As noted in the final rule, transient weather conditions (alone or in combination with topographic features) may also give rise to temporary coverage gaps over which the railroad will have no control. These interruptions are inherent to communications in the 160 MHz band and cannot be effectively addressed through regulatory fiat.

The second dimension of the coverage issue involves those situations where roadway workers may find it necessary to work at some distance from trucks or on-track equipment equipped with mobile radios, in territory where only a mobile radio can be relied upon to communicate with the control center. In these situations, it is again unrealistic to

require that repeater stations be installed in a pattern so dense that portable radios will always be capable of reaching the control center. Portable radios transmit at lower wattage than mobile radios, and their smaller antennas are less able to receive faint signals. Particularly in the Western States, adding repeater stations to accommodate communication with the control center using only portable radios could result in massive expenditures for additional radio infrastructure. FRA has reviewed this issue in light of the public comments and fashioned the following approach in this final rule:

- Those in charge of obtaining protection for roadway workers (including lone workers) must be provided with whatever radio equipment is needed to reach the control center from their work area, subject to the same localized and transient exceptions that apply to trains above. (Groups or lone workers traveling by rail will already have this capability in the form of a mobile radio, and trucks used by signal maintainers and other roadway workers must be similarly equipped unless portable radios are sufficient for the purpose of reaching the control center.)

- To the extent that it is not practicable for such workers to maintain immediate access to communications capability with the control center (because of the need to work at some distance from equipment on which mobile radios are mounted), portable radios must be provided. Portable radios will permit these workers to monitor local transmissions from trains, a major objective sought by representatives of these workers during the working group negotiation. In an emergency involving injury to a roadway worker, it may also be possible to relay information to the control center through crews of passing trains or through another roadway worker situated within earshot of the group's on-track equipment or truck.

FRA believes that the final rule upholds the intent of the working group to provide effective communications capability for trains and roadway workers while responding to the detailed comments on coverage received in response to the NPRM. FRA recognizes that standards for effective communication will continue to evolve as technology improves and the rail industry gains experience in the application of this final rule.

(2) Roadway Worker Protection

The NPRM proposed to require large railroads to provide each designated employee in charge, and each lone worker, with immediate access to a

working radio. Small railroads would have the option of providing immediate access to either a working radio or working wireless communications.

Several commentators raised issues concerning the NPRM and FRA's Roadway Worker Protection regulations (49 CFR Part 214, Subpart C). Referring to FRA's proposed lone worker definition, DMIR suggested that FRA substitute "work group" for "work gang" to be consistent with Part 214 terminology. FRA agrees and has substituted "group" for "gang" throughout this final rule. To further harmonize this part with Part 214, FRA substitutes "employee responsible for on-track safety" for "designated employee in charge" (a term used in the NPRM's preamble, but not the rule text) and "employee in charge of on-track equipment" to ensure consistent terminology, and amends § 220.61(b) to require the employee responsible for on-track safety to retain a copy of a mandatory directive while it is in effect, to parallel the retention requirements in § 214.321 (retention of mandatory directives is discussed in more detail elsewhere in this preamble).

NS expressed concerns about "substantial" duplication between the NPRM and Part 214. Additionally, AAR commented that the preamble had incorrectly stated that the Working Group's recommendations resulted from a decision to enhance roadway worker compliance with Part 214 and ability to communicate unsafe conditions. ASLRRA supported AAR's comments, adding that the preamble had misstated the tasks of the Working Group by implying that the Group had been tasked with equipping maintenance-of-way equipment and/or extending roadway worker requirements into the railroad communications rule.

After examining both rules, FRA finds them complementary, not conflicting or duplicative, since the communications requirements in this final rule reinforce compliance with on-track safety procedures by workers performing duties on or adjacent to live track. While there may not be agreement concerning the Group's reasons for amending Part 220, the changes contained in the NPRM were the product of consensus.

BMWE's comments are addressed in the section-by-section analysis.

(3) Non-Radio Wireless Communications Procedures

FRA asked for comments on whether non-radio wireless communications procedures paralleling the radio procedures in Subpart B should be adopted for cellular telephones and other wireless communications devices

that would be covered under the NPRM. To focus on this issue, FRA inquired whether non-radio wireless communications had the same opportunities for misunderstanding as radio transmissions, and asked how such procedures would be enforced (e.g., "over" and "out" with cellular telephones where usually only one party to the conversation could be overheard).

BLE SEPTA recommended that FRA adopt certain sections of the current radio procedures for non-radio wireless communications, specifically identification (§ 220.27), statement of numbers and letters (§ 220.29), ending a transmission (§ 220.35), consistency with federal regulations and railroad operating rules (§ 220.43), complete communications (§ 220.45), and transmission of mandatory directives (§ 220.61). BLE SEPTA noted that while cellular telephones have less interference from other communications there is also no listener redundancy to detect errors. BMWE also supported adoption of non-radio wireless communications procedures to ensure the accurate transmittal and copying of information. In particular, BMWE advocated requiring all mandatory directives transmitted via non-radio wireless communications to be repeated back and verified before being acted upon. BLE Local 112 suggested that FRA require the dispatcher to have a separate telephone number for emergencies.

Conversely, UP commented that non-radio wireless communications procedures were unnecessary, and that railroads could combine ordinary telephone procedures with operating rules to govern such communications. APTA also commented that non-radio wireless communications procedures were unnecessary, since wireless communications other than radio would not involve heavy communications traffic on shared channels. With cellular telephones, for example, parties to a call would not be subject to interfering traffic so the potential for confusion would be diminished. APTA also believed that non-radio wireless communications procedures would be difficult to monitor, and consequently, both unenforceable and counterproductive.

After reviewing the comments, FRA has decided not to promulgate non-radio wireless communications procedures at this time, since the Working Group did not consider in depth how to ensure the accuracy and completeness of non-radio wireless communications. As proposed, in this final rule FRA addresses only the testing and failure of non-radio wireless

communications equipment (in §§ 220.37 and 220.38 respectively).

FRA emphasizes, however, that the procedures in § 220.61(b) should be followed even when a cellular telephone or other form of wireless communication is used to transmit a mandatory directive, since there is a risk of miscommunication. Regardless of the means of transmission, an employee should not copy a mandatory directive while at the controls of moving equipment. Regardless of the means of transmission, FRA expects a mandatory directive to be copied in its entirety and retained for the duration of the work assignment, to ensure that those responsible for executing the directive understand (if train crew) or acknowledge (if roadway workers) it. While existing railroad operating rules will otherwise continue to govern non-radio communications, FRA will monitor compliance with § 220.61, and will revisit the issue of non-radio wireless communications procedures if necessary.

(4) Ending a Transmission

In the NPRM, FRA asked for comment on whether use of "over" and "out" at the end of each radio transmission should remain a requirement or become a recommended practice.

Comments in response to the NPRM were divided. BMWE was not opposed to retention of "over" and "out" provided that failure to end a transmission in this manner did not result in individual liability. Conrail supported changing "over" and "out" to a recommended practice, commenting that this requirement was unique to railroads. UP, also in favor of anti-retention, suggested that "over" and "out" be required only when necessary to ensure transmission quality. Finally, AAR and ASLRRA both favored allowing railroads to follow their own current radio practices, commenting that "over" and "out" had no special safety significance.

After reviewing these comments, FRA has decided to retain "over and out" in the final rule, except in yard switching operations, where radio congestion is a frequent problem and rapid delivery of information supports real time decisions that are crucial to safety. This exception is consistent with the latitude allowed under current FRA enforcement practice. Use of "over" and "out" makes clear to the conversants, and to any listeners monitoring and using that frequency, when a radio transmission is in progress and when it has concluded. Past audits demonstrate that overall compliance with radio rules improves whenever this requirement is strictly

enforced. Moreover, crews may act on incomplete information or overlapping transmissions without a standard procedure to indicate when a transmission is over.

(5) Copying and Retention of Mandatory Directives

In the NPRM, FRA clarified that § 220.61 has always required that the conductor and the engineer each have an individual copy of every mandatory directive transmitted by radio, since each is responsible for ensuring that all train crew members (with the exception of passenger and commuter train personnel not directly involved in the operation of the train) read and understand the directives before they are acted upon.

In its comments, NS suggested that a single copy of a mandatory directive in the possession of either the conductor or engineer could be used to ensure that both read and understand a mandatory directive before acting upon it, thus avoiding the copying and paperwork burden of duplicate copies. FRA disagrees and this final rule tracks the proposed rule; too much potential for misunderstanding exists when the engineer and conductor share a single copy of a mandatory directive, even if both have read it. DMIR, however, asked if a two-part form could be used to avoid possible transcription errors in making a duplicate written copy of the mandatory directive. FRA has no objections, so long as the engineer and conductor each retain a part of the form containing the complete mandatory directive.

For roadway groups, FRA proposed to require that a mandatory directive be "acknowledged," instead of "read and understood," by the designated employee in charge, who would then provide a detailed job briefing at the beginning of the assignment notifying the other roadway workers of the group's movement limitations, authorities, and other relevant information.

FRA received no comments on this proposal, and adopts it in this final rule.

FRA proposed requiring that fulfilled or canceled mandatory directives be marked with an "X" or in accordance with the railroad's operating rules to prevent later employee confusion as to which mandatory directives were applicable at any point of time, and that each employee responsible for executing a mandatory directive within a train crew or roadway group retain copies of those directives for the duration of his or her work assignment. FRA also solicited comments on the value of requiring retention of copies of

mandatory directives for seven work days after completion of the work assignment as recommended in a recent FRA Safety Bulletin (61 FR 64191, August 26, 1996), and as already required on NORAC (the Northeast Operating Rules Advisory Committee) member railroads. This proposal would enable both railroads and FRA to enforce compliance with the copying requirement.

Commentators uniformly supported marking directives fulfilled or canceled. Commentators were divided on FRA's suggestion to retain copies until the end of the work assignment, and uniformly opposed retention for seven work days after completion of the work assignment. Railtex, for example, commented that a seven day retention period would be unenforceable, but supported retaining copies of mandatory directives for the duration of the crews' work assignment. AAR, ASLRRA, and BMW, on the other hand, commented that retaining mandatory directives beyond their effective period could lead to confusion as to which directives had been fulfilled and which remained active, and that marking fulfilled directives with an "X" or in accordance with railroad operating rules would be sufficient. ASLRRA added that FRA's Roadway Worker Protection regulations require retention only until the directive has been fulfilled or canceled.

After considering this issue further, FRA continues to believe that those employees responsible for ensuring that mandatory directives are read and understood, namely engineers and conductors, should be required to retain their copies for the duration of the work assignment and mark copies of directives that have been fulfilled or canceled with an "X" or in accordance with the railroad's operating rules and this final rule so provides. Inspecting retained copies will enable railroads and FRA to monitor and ensure that all mandatory directives are correctly copied, read, and understood before being acted upon by those with a need to know.

FRA agrees, however, that these part's retention requirements should be consistent with those in Part 214 for employees responsible for on-track safety. To avoid potential confusion, in § 220.61(b)(5)(ii) the final rule requires the employee responsible for on-track safety to retain a copy of the mandatory directive while it is in effect, the same retention period required for a copy of authority for exclusive track occupancy under § 214.321. Copies of fulfilled or canceled directives need not be marked because of their anticipated short retention time.

Other comments

In addition, FRA received some comments that did not address specific sections of the NPRM or the five issues discussed above.

BLE suggested that each working radio should be equipped with a hand held microphone and speaker, to allow the engineer greater range of vision and movement while operating the controls of the locomotive, and to screen out interference and background noise. Communication equipment design specifications is a significant issue that was not considered by the Working Group, and consequently is not within the scope of the NPRM. FRA will therefore defer resolution of this issue to future rulemakings.

BLE SEPTA made several comments specific to SEPTA's predominantly short train operations. BLE SEPTA expressed concern that on two car trains any interference with the primary radio would also block the redundant radio because of the short distance between radios. Since SEPTA engineers often operate multiple unit cars with dual operating compartments separated by a passenger compartment, BLE SEPTA also suggested requiring the redundant working wireless communication to be located in the operating compartment of the controlling locomotive to ensure access by the engineer. While FRA believes that such equipment should be located in the back of the consist, where it would be better protected and available for emergency notification in the event of a frontal impact, the final rule does not specify where redundant communication equipment should be placed in a train. BLE SEPTA would also require voice tests for each radio frequency used during the train's tour and for each instance where a train proceeds after an interruption of power. Implicit in the working radio definition, however, is the presumption that the radio works on all relevant channels. This communications capability should not be affected by a change in radio frequency or an interruption of power.

BLE SEPTA also recommended that FRA prohibit the use of radio to transmit public service announcements and promotional information to the crew for conveyance to passengers. FRA agrees that radio channels should not be used for non-essential broadcasts, but has not included this prohibition since it is already included in many railroad operating rules, such as NORAC Rule 709, which prohibits broadcast of unnecessary, irrelevant, or unidentified information. An additional BLE SEPTA comment concerning incomplete

transmissions is discussed in § 220.45 below.

Finally, referring to appendix B's Recommended Pronunciation of Numerals, DMIR stated that the number "0" should be spoken as "zero," not "0;" and that "1600" should be "wun six hundred" not "wun six thousand." FRA appreciates DMIR noting these long-standing errors, and has corrected them in this rule.

Effective Dates

As proposed, this final rule becomes effective 120 days after publication to allow all railroads four months to implement the new streamlined procedures, which should not require extensive investment or retraining. Since the timetable for implementation is, of course, determined by the issuance date of this final rule, FRA is extending the proposed implementation dates for §§ 220.9 and 220.11 an additional nine months to allow both large and small railroads sufficient time for equipment purchase. Thus, §§ 220.9 and 220.11 apply July 1, 1999 for railroads providing commuter service in a metropolitan or suburban area, railroads providing intercity passenger service, and railroads with 400,000 or more annual employee work hours in 1997. Since small railroads are allowed an additional year for capital investment, §§ 220.9 and 220.11 apply July 1, 2000 for railroads with fewer than 400,000 annual employee work hours in 1997.

As mentioned above, this part is retitled to reflect its coverage of other means of wireless communications such as cellular telephones and data radio terminals. The section-by-section analysis discusses the remaining amendments to Part 220.

SECTION-BY-SECTION ANALYSIS

Subpart A-General

Section 220.1 Scope

As proposed, FRA expands the scope of this part to allow for newer forms of technology already in use. For this reason, FRA changes the phrase "radio communications" to "wireless communications" and adds definitions for "working radio" and "working wireless communications" to this part.

Section 220.2 Preemptive Effect

This new section parallels the preemption language in 49 U.S.C. § 20106.

Section 220.3 Application

This section is unchanged.

Section 220.5 Definitions

Throughout this rule, FRA substitutes "locomotive," which also includes cab cars and MU units, wherever the term "engine" appeared. Also, as mentioned above, FRA changes the term "gang" to "group" when referring to roadway workers, to be consistent with FRA's Roadway Worker Protection regulations.

Unless otherwise noted, the following definitions are adopted as proposed.

Adjacent tracks. This definition, taken from FRA's Roadway Worker Protection regulations (see below), means two or more tracks with track centers spaced less than 25 feet apart.

Control center. By control center, FRA means the locations from which a railroad issues instructions governing its operations.

Employee. In 1992, the Rail Safety Enforcement and Review Act (RSERA) clarified that FRA's safety jurisdiction extends to all entities, including contractors and their employees, that may violate the railroad safety laws. FRA has therefore amended this definition to include contractors and their employees, and any individuals authorized by railroads who use radios, or any other form of wireless communications in connection with railroad operations.

Immediate access. This term, discussed in the preamble of the NPRM, is now added to the definitions section. Immediate access to a radio means that a radio is either on the employee's person, or sufficiently close to the employee to allow the employee to make and receive radio transmissions.

Joint operations. This term means rail operations conducted by more than one railroad on the tracks of a railroad with 400,000 or more annual employee work hours, except as necessary for the purposes of interchange.

Locomotive. This term is taken from FRA's Railroad Locomotive Safety Standards (49 CFR Part 229).

Lone worker. For consistency, this definition and terms that cross-reference roadway worker protection throughout this document are taken from the Roadway Worker Protection regulations.

Mandatory directive. In this part, FRA replaces the term "train order" with "mandatory directive," which conveys the same meaning as the traditional train order, but refers specifically to speed restrictions and movement authorities such as track warrants, Form D's, and DTC (Direct Train Control) authorities. Excluded from this definition are verbal instructions that are advisory in nature and typically involve imminent conditions, such as verbal permission to: pass a block or

interlocking signal indicating stop; open a main track switch and enter the main track in interlocking limits or in CTC (Centralized Traffic Control) territory; move with the current of traffic in Rule 251 territory; make a reverse movement within the limits of the same block, pass a stop sign or red flag and enter working limits; and obtain foul time. Verbal warnings of obstructions or trespassers on or along the right-of-way, or instructions to stop a train due to an imminent danger, are also excluded. All of these instructions must be repeated as prescribed in § 220.33(b), but need not be copied since the crew will shortly act upon the information conveyed.

Copying requirements are addressed further in the discussion of § 220.33.

Railroad operation. This definition substitutes "locomotive" for "engine," and makes an editorial change from "single" to "singly."

Roadway worker. This definition, taken from FRA's Roadway Worker Protection regulations, means any employee of a railroad, or of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal, and communication systems, electrical traction systems, roadway facilities or roadway maintenance machinery on or near track or with the potential of fouling a track, and flagmen and switchman/lookouts.

Train. Any railroad operation subject to the air brake testing requirements of FRA's regulations on Railroad Power Brakes and Drawbars (49 CFR Part 232) is considered a train for purposes of this rule. This includes transfer trains, but not switching operations, or the assembly and disassembly of rail cars within a railroad yard, since these operations do not require an air test.

Working radio. A working radio is one with an adequate power source, free of mechanical malfunctions, that can both transmit and receive communications to and from the railroad's control center from any location within the rail system (through repeater stations, if necessary), with certain exceptions noted below. In the case of joint operations on another railroad, the radio must also be able to reach the control center of the host railroad.

A radio satisfies this definition even if there are localized dead spots (such as a tunnel) within a territory and even if temporary fluctuations or interference from weather or terrain occur. (It should be noted, however, that under § 220.45 of this part, any communications which are not fully understood or properly completed may not be acted upon and must be treated as if not sent.) Railroads must maintain the communications

capability to broadcast in all territory over which they operate, however.

Working wireless communications. With the exceptions noted, the final rule requires communications redundancy to compensate for radio communication failures due to interference, equipment failure, transmission difficulties and other problems which will occur with even the most advanced equipment. This term means the capability to communicate with either a control center or emergency responder of the railroad through a radio, portable radio, cellular telephone, or other means of two-way communication from locations within the rail system. (Emergency responder in this part means a member of a police or fire department, or other organization involved with public safety charged with providing or coordinating emergency services, who responds to a passenger or freight train emergency. See FRA's Passenger Train Emergency Preparedness regulations for additional discussion of this term.)

Section 220.7 Penalty

As discussed above, the RSERA expanded coverage of FRA's regulations to include contractors and their employees. FRA therefore amends this section to clarify that this part applies not only to railroads but also to any other entity that may violate this part, including independent contractors who provide goods and services to railroads and the employees of such contractors. Thus, any person authorized by a railroad to use its wireless communications facilities must comply with Part 220 procedures, regardless of whether the person has a direct employment relationship with the railroad.

The Federal Civil Penalties Inflation Adjustment Act of 1990 (Pub. L. 101-410 194 Stat. 890, 28 U.S.C. 2461 note, as amended by the Debt Collection Improvement Act of 1996, Pub. L. 104-134, April 26, 1996), required agencies to adjust the maximum civil monetary penalties within their jurisdiction for inflation. FRA determined the resulting \$11,000 and \$22,000 maximum penalties in this part by applying the criteria set forth in sections 4 and 5 of the statute to the maximum penalties otherwise provided for in the Federal railroad safety laws. Additionally, the minimum penalty for violations of this part is now \$500, as required by the RSERA.

Section 220.8 Waivers

This new section adopts by reference the procedures in Subpart C of 49 CFR Part 211 (Rules of Practice) for petitioning for a waiver from

compliance with the requirements of this part.

Section 220.9 Requirements for Trains

Paragraph (a): As discussed above in the section summarizing the communications equipment requirements for trains, large railroads must equip all trains with a working radio in the controlling locomotive and with a back-up means of wireless communications. This requirement applies to both freight and passenger operations.

The controlling locomotive must be equipped with a working radio only when the locomotive is occupied by an assigned train crew and the train is involved in railroad operations. To allow for possible radio failure en route, the train must also have a form of working wireless communications upon departure from a terminal. As required in §§ 220.37 and 220.38, all required communication devices must be tested prior to the commencement of a work assignment, and removed from service if found not to be functioning as intended. Wireless communications must be able to reach the railroad's control center or an emergency responder.

Paragraph (b): As discussed above, small railroads have to meet the same heightened communication equipment standards as large railroads when operating passenger trains. Thus, all passenger trains, regardless of the size of the operating railroad, have to be equipped with both a working radio in the occupied controlling locomotive and with redundant working wireless communication equipment.

For freight trains, the communication requirements are determined by two factors: train operating speed, and extent of joint operations. If a freight train operates at greater than 25 miles per hour, or engages in joint operations on track where the maximum authorized speed for freight trains is greater than 25 miles per hour, the train must be equipped with a working radio in the occupied controlling locomotive. Similarly, a freight train engaged in joint operations on track that is adjacent to and within 30 feet measured between track center lines of another track on which the maximum authorized speed for passenger trains is greater than 40 miles per hour, must also be equipped with a working radio in the occupied controlling locomotive. When any of the operating conditions described above are met, the freight train crew must have a working radio to enable them to communicate with the host railroad's control center and the other trains on the host railroad.

The term "within 30 feet of another track center," a criteria used in FRA's exercise of jurisdiction over tourist railroads, and also in the excepted track definition in FRA's Track Safety Standards (49 CFR Part 213), defines when a railroad operates sufficiently close to passenger train operations to create the potential for interference. This requirement ensures that all freight trains operating in close parallel proximity to passenger trains are equipped with radios.

A train that engages in joint operations on track where the maximum authorized speed for freight trains is 25 miles per hour or less is required to have working wireless communications, but not a working radio in the occupied controlling locomotive. A train that transports hazardous materials must also have working wireless communications even if it does not transport passengers or engage in joint operations. No communication equipment is required if a train does not transport passengers or hazardous material, and does not engage in joint operations or operate at greater than 25 miles per hour.

Section 220.11 Requirements for Roadway Workers

As proposed, large railroads must provide a working radio on maintenance-of-way equipment moving to or from a work location, or between multiple work locations on the same day, to enable the roadway work group to contact the control center in the event of an emergency when traveling. A unit of equipment traveling alone must also be radio equipped. A small railroad is exempted if its trains do not operate in excess of 25 miles per hour. Several commentators noted areas in which the preamble discussion of this section differed from the proposed rule text; these are clarified below.

Paragraph (a)(1): BMW alerted FRA that the preamble discussion of this paragraph could be read as being more encompassing than the proposed rule text. In the NPRM's preamble, FRA stated that "[i]f several maintenance-of-way units are physically separated, only one unit would have to be equipped with a working radio, provided that all of the units are *under the control of the same employee* (emphasis added)," while the rule text referred to multiple pieces of maintenance-of-way equipment traveling together *under the same movement authority*. As BMW noted, the term "under the control of the same employee" could vary from railroad to railroad. FRA agrees that the preamble misstated the intent of the Working Group, which was to ensure

that multiple pieces of maintenance-of-way equipment traveling together *under the same movement authority* be able to communicate with the control center.

Additionally, AAR, APTA and UP all correctly pointed out that the preamble discussion of intra-group communications was overly restrictive when it twice referred to a requirement for maintenance-of-way intra-group *wireless* communications capability, since the proposed rule text only required maintenance-of-way equipment to have intra-group communications capability with each other. Under the final rule alternatives to wireless communications, such as horns, hand signals, and amplified voice systems are acceptable means of intra-group communications.

Paragraph (b): Access to a working radio is determined by function, with two categories of roadway workers, the employee responsible for on-track safety of a roadway work group, and the lone worker, required to have access to a working radio. Both categories have analogous communication needs, since in each case, the employee is responsible for providing protection, either for an entire roadway group, or for him or herself.

As discussed above, large railroads must provide each employee responsible for on-track safety and each lone worker with access to a working radio, and with a portable radio whenever immediate access to the working radio is unavailable. Small railroads have the option of providing access to either a working radio or working wireless communications.

Paragraph (c)(2): As proposed, a railroad, regardless of size, is not required to provide communication equipment whenever the work location of the roadway work group or lone worker is physically inaccessible to trains, or has no through or adjacent track traffic when roadway workers are present.

BMW suggested narrowing this proposed exclusion by requiring the conditions in both (i) and (ii) to be present, to ensure communications capability whenever rail traffic is expected on tracks adjacent to work locations protected in accordance with the inaccessible track requirements of Part 214. By changing the underlined "or" to "and," BMW would require physically inaccessible locations to have communications capability to protect against traffic on adjacent tracks not within the limits described in § 220.11(c)(2)(i).

Although most short lines are single track operations, a double track railroad could not operate on either track if it

wished to qualify for BMW's proposed exclusion. To address BMW's concerns and be compatible with FRA's Roadway Worker Protection regulations, FRA instead incorporates Part 214's adjacent tracks definition, two or more tracks with track centers spaced less than 25 feet apart, into § 220.11(c)(2)(ii). By doing so, FRA requires railroads not exempt under § 220.11(c)(1) to provide access to a working radio to a employee responsible for on-track safety or lone worker whenever there is adjacent traffic within 25 feet of their work location.

Section 220.13 Reporting Emergencies

Paragraphs (a)–(c): In this new section, FRA proposed to require an employee to use the quickest means of communications available to notify the control center before undertaking other forms of emergency response, such as medical treatment or evacuation, to ensure that properly trained and equipped personnel respond to the scene as quickly as possible. While agreeing that an employee should use the quickest means available to notify the railroad, BMW suggested that the on-site employee should be allowed discretion to determine the priorities in an emergency (e.g., by choosing to render medical attention before notifying the railroad). Although FRA agrees that an emergency may occasionally require immediate action prior to notification, as a general rule, on-site employees should not undertake responsive action without sufficient information and proper training. Requiring notification to be the first priority facilitates the quick arrival of professional emergency response personnel in situations when the *right* actions and reactions are critical.

The employee should follow the emergency radio transmission procedures in § 220.47 of this part when using a radio, or the procedures specified in the railroad's timetable or timetable special instructions when using another means of wireless communications. This section also includes language on emergency procedures originally contained in § 220.47(a).

Paragraph (d): FRA adds this paragraph to require an alternative means of emergency reporting whenever railroad operations are conducted while the control center is unattended or unable to receive radio transmissions. For example, a railroad may provide its employees with cellular telephones or portable radios with a dedicated police channel in lieu of maintaining 24-hour control center staffing to handle after hours emergencies. In such scenarios,

employees would then have the capability to inform the staffed operating center of another railroad or to contact emergency responders directly. FRA anticipates that this added flexibility will primarily benefit medium-sized railroads, since many small railroads already rely on cellular telephones for emergency notification and large railroads staff their control centers around the clock.

Subpart B—Radio and Wireless Communication Procedures

FRA retitles Subpart B to make clear that the definition for working wireless communications, like that for working radio, requires that communications equipment be tested and in working condition before a work assignment commences. Both wireless communication and radio equipment are covered by §§ 220.37 and 220.38; section titles in this Subpart that apply only to radio operations have accordingly been retitled to reflect that fact.

Section 220.21 Railroad Operating Rules; Radio Communications; Recordkeeping

FRA deletes the implementation dates from this section since these references are no longer necessary.

Paragraph (b): FRA received no comments on its proposed editorial changes, which are incorporated into this final rule.

Paragraph (c): FRA retains the carrier classifications (Class I, II, and III railroads) created by the former Interstate Commerce Commission (ICC) and retained unchanged by the ICC's successor, the Surface Transportation Board.

Section 220.23 Publication of Radio Information

FRA received no comments on its proposed editorial changes, which are incorporated into this final rule.

Section 220.25 Instruction and Operational Testing of Employees

Paragraph (c): This paragraph requires a railroad to test employees authorized to use a radio for railroad operations on the procedures in this part. The railroad shall administer radio procedure tests in accordance with its written program of operational tests and inspections filed under § 217.9 (Railroad Operating Rules, 49 CFR Part 217), and in conjunction with mandatory periodic operating rules tests.

Section 220.27 Identification

Paragraph (a): FRA combines paragraphs (a)(2) and (a)(3), and deletes

paragraph (a)(3)'s requirement for an employee (usually the dispatcher) to identify the location of the station from which the employee is broadcasting, for those railroads that use central or regional dispatching, with a uniquely designated station for each dispatching system. If a station does not have a unique designation, both the station's name and location should continue to be stated.

Paragraph (b): FRA received no comments on its proposed editorial changes, which are incorporated into this final rule.

Section 220.29 Statement of Letters and Numbers in Radio Communications

This section is retitled to limit its applicability to radio communications.

Paragraph (b): FRA received no comments on its proposed editorial changes, which are incorporated into this final rule.

Paragraph (c): This paragraph is amended to provide that a decimal point may also be indicated by the use of the words "dot," or "point," in addition to "decimal."

Section 220.31 Initiating a Radio Transmission

This section is retitled to limit its applicability to radio communications. FRA had asked for comment on whether to change its current order of identification, which requires the caller to identify him or herself before identifying the intended receiver, to the reverse order, with the caller first identifying who he or she seeks to contact, and then identifying him or herself. FRA received no comments on this proposal, and accordingly retains its current order of identification.

Section 220.33 Receiving a Radio Transmission

This section is retitled to limit its applicability to radio communications. Paragraph (a): FRA adopts a proposed change which clarifies that an employee need not monitor the radio when other immediate duties intervene, but must resume monitoring once those circumstances are over.

Paragraphs (b) and (c): FRA deletes paragraph (b) since it is made redundant by paragraph (a), and redesignates current paragraph (c) as paragraph (b).

As discussed above, unless required by a railroad's operating rules, a railroad employee does not have to copy advisory instructions, since the train either already possesses authority to occupy the main track by signal indication, or through the railroad's operating rules. Similarly, advisory information on conditions ahead such

as trespassers or debris on track also involves imminent conditions that often change by the time the next train passes by. While these short-term instructions must be repeated, they need not be copied since they will soon be acted upon. (In non-signaled territory, in contrast, occupying or fouling a main track typically requires written initial movement authority from the train dispatcher or control operator.)

On the other hand, copying is necessary when an order will be acted upon later, or is of a long-term nature. In such instances, FRA believes that an employee must have a written reference to avoid the risk that the employee may later rely on a faulty recollection of the instruction.

Paragraph (b)(1): FRA received no responses to its request for comments on whether to continue requiring communications to be repeated in switching operations. Therefore, FRA leaves this section unchanged. As before, communications involving yard switching operations do not have to be repeated back to the transmitting party, since switching in yards often requires the rapid exchange of information being acted upon in real time, and the higher volume of operations in yards contributes to greater congestion on yard channels.

Section 220.35 Ending a Radio Transmission

This section is retitled to limit its applicability to radio communications. As discussed above, use of "over" and "out" is no longer required in yard switching transmissions, because of their high volume and the need to keep phrasing as terse as possible in light of the real time decision making for which the information is employed. For all other radio transmissions, use of "over" and "out" continues to be required to ensure that employees act on complete information and do not inadvertently interrupt transmissions already in progress.

Section 220.37 Testing Radio and Wireless Communication Equipment

As discussed above, this section is retitled and expanded in scope to cover testing of all the communication equipment required by §§ 220.9 and 220.11.

Paragraph (a): As proposed, FRA substitutes "as soon as practicable" for "at least once during each tour of duty," to require the crew to perform a voice test at the start of their tour rather than at any point during their trip, thus enabling the crew to learn before they first need to use the radio whether it works properly or needs to be replaced.

BMWE noted that the NPRM preamble discussion implied that the requirement to perform such voice tests is limited to the engineer and conductor, when in fact the rule requires all employees who use wireless communications equipment to perform voice tests as soon as practicable.

DMIR, however, felt that requiring voice testing for "all workers using radios" is unnecessary and would also require recordkeeping. As mentioned above, FRA has always required voice testing; FRA is modifying and expanding this requirement to ensure that employees have access to working wireless communications equipment before beginning their work assignments. FRA has not previously required recordkeeping of voice tests, and does not do so in this rule.

Also as proposed, FRA deletes the phrase "outside yard limits" to ensure that a voice test is conducted even when a train does not leave yard limits, and the phrase "where the train is made up" to make clear that at each intermediate crew change point, the new crew must perform a voice test at the start of their tour.

Paragraphs (b) and (c): Existing paragraphs (b) and (c) are deleted, since these requirements would be covered in proposed § 220.38, discussed below. A new paragraph (b) is added requiring that the test of a radio shall consist of voice transmissions with another radio, with the employee receiving the transmission advising the employee conducting the test of the clarity of the transmission.

Section 220.38 Communication Equipment Failure

This new section addresses failure of the communication equipment required by §§ 220.9 and 220.11.

Paragraph (a): If a radio or wireless communication device failure occurs, the employee is required to notify the proper authorities. In addition, FRA now requires inoperative radios and inoperative mandatory wireless communication equipment to be removed from service upon discovery.

Paragraph (b): As proposed, if a radio or wireless communication device fails en route, the controlling locomotive may proceed until the earlier of the next calendar day inspection or the nearest repair point where the equipment could be repaired or replaced. The movements allowed for communication equipment repair in paragraph (b) are taken from § 229.9(b) of FRA's Railroad Locomotive Safety Standards, which specifies the movements allowed for repair of non-complying locomotives.

In the NPRM, FRA asked for comment on whether, to encourage prompt replacement of failed radios, the final rule should expressly provide that placement of one or more radios on locomotives at a particular location does not constitute that location as a "repair point." Both UP and AAR agreed with this suggested guidance, which FRA will employ as a rule of reason to encourage railroads to replace failed radios as soon as feasible with a reasonable deployment of equipment. (FRA anticipates that failed radios will usually be replaced and not repaired, since the capability to repair these solid state units is normally available only at central shops or the manufacturer). Thus, FRA will not consider a location to be a designated repair point merely because the railroad voluntarily makes or has made repairs there.

Section 220.39 Continuous Radio Monitoring

This section is retitled to limit its applicability to radio communications. FRA received no comments on its proposed editorial changes, which are incorporated into this final rule.

Section 220.41 Notification on Failure of Radio

FRA removes and reserves this section since it is made redundant by § 220.38, discussed above, which also addresses radio and equipment failures. In its comments, Conrail correctly noted that the proposed removal of this section would require the removal of its corresponding penalty. Accordingly, FRA also removes the penalty for this section from the penalty schedule.

Section 220.43 Radio Communications Consistent With Federal Regulations and Railroad Operating Rules

This section is retitled to limit its applicability to radio communications, and reworded, to make clear that radio communications must be in compliance with this part, FCC regulations, and railroad operating rules.

Section 220.45 Radio Communications Shall Be Complete

This section is retitled to limit its applicability to radio communications, but is otherwise unchanged. BLE SEPTA suggested that employees should be required to comply with the more restrictive condition whenever an incomplete communication may contain a more restrictive operating condition, until communications have been reestablished. FRA believes that requiring employees not to act upon incomplete communications is safer practice than requiring employees to

speculate and possibly make incorrect assumptions about the content of unfinished communications.

Section 220.47 Emergency Radio Transmissions

This section is retitled to limit its applicability to radio communications. As discussed above, since § 220.13(a) now addresses emergency notification, § 220.47(b) has been deleted. The revised section continues to require an *initial* emergency transmission to begin with the word "emergency" repeated three times.

Section 220.49 Radio Communication Used in Shoving, Backing or Pushing Movements

This section is retitled to limit its applicability to radio communications, and to make clear that the section applies to back-up moves only. In addition, the phrase "in lieu of hand signals" is deleted to emphasize that this section applies *whenever* a radio is used. To make the section easier to understand, FRA also makes several editorial changes simplifying its language.

Section 220.51 Radio Communications and Signal Indications

This section is retitled to limit its applicability to radio communications.

Paragraph (b): As proposed, FRA deletes the phrase "in automatic block territory" to emphasize that the prohibition against conveying signal indications applies to all types of territory. UP, however, asked for clarification on whether a dispatcher or control operator could advise a crew if the indication or aspect of a signal unexpectedly changed from proceed to stop. UP noted that such warnings have previously prevented emergencies by providing crews sufficient notice to stop their trains safely.

In emergency situations, FRA has always allowed signal indications or aspects to be conveyed on a need to know basis. FRA will continue to allow such radio communications when necessary to prevent imminent danger or accidents.

Section 220.61 Radio Transmission of Mandatory Directives

FRA substitutes "mandatory directive" for "train order" wherever that term appeared and integrates this section, which addresses the transmission of mandatory directives by radio, into Subpart B, which covers all radio procedures. The word "radio" has been added to the title of this section. Other than this change, the section is adopted as proposed with the addition

of new retention requirements. For train crews, the conductor and engineer are required to retain copies of mandatory directives for the duration of their work assignments. For on-track equipment, the employee responsible for on-track safety must retain copies of mandatory directives while they are in effect.

Appendices

As discussed above, FRA amends appendix B to correct some longstanding errors in its recommended pronunciation of numerals, and amends appendix C to delete the penalty for § 220.41, which has been removed and reserved. FRA also amends appendix C to add penalties for failure to comply with the communications equipment standards contained in §§ 220.9 and 220.11. Also as discussed above, FRA amends the minimum and maximum penalties for this part in accordance with the RSERA and the Federal Civil Penalties Inflation Adjustment Act of 1990, respectively.

Environmental Impact

FRA has evaluated this rule for its potential environmental impacts, as required by the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) and related directives, and determined that it is a non-major action for environmental purposes.

Federalism Implications

FRA has analyzed this rule in accordance with the principles of Executive Order 12612 ("Federalism"), and determined that these amendments to Part 220 do not have sufficient federalism implications to warrant the preparation of a Federalism Assessment. The fundamental policy decision providing that Federal regulations should govern aspects of service provided by municipal and public benefit corporations (or agencies) of State governments is embodied in the statute quoted above. To provide reasonable flexibility to State-level decision making, FRA included commuter authorities as full partners in the development of this rule.

Regulatory Impact

Executive Order 12866 and DOT Regulatory Policies and Procedures

This rule has been evaluated in accordance with existing policies and procedures, and been determined to be non-significant under both Executive Order 12866 and DOT policies and procedures (44 FR 11034; February 26, 1979). FRA has prepared and placed in the docket a regulatory analysis addressing the economic impact of the final rule. Document inspection and

copying facilities are available at 1120 Vermont Avenue, 7th Floor, Washington, D.C. Photocopies may also be obtained by submitting a written request to the FRA Docket Clerk at Office of Chief Counsel, Federal Railroad Administration, 400 Seventh Street, S.W., Washington, D.C. 20590.

As part of the regulatory impact analysis FRA has assessed quantitative measurements of costs and benefits expected from the adoption of the final rule. Over a twenty year period, the Net Present Value (NPV) of the estimated quantifiable societal benefits is \$57.8 million, and the NPV of the estimated costs is \$37.1 million.

The major costs anticipated from adopting this final rule include the installation of radios in some locomotives; the purchase of cellular telephones or other forms of wireless communication by smaller railroads; usage fees for cellular telephones; the installation of radios in some maintenance-of-way equipment; the purchase of additional portable radios for roadway work groups and lone workers; training on radio procedures; maintenance of locomotive and portable radios; and replacement cellular telephones.

The major benefits anticipated from adopting this final rule include a reduction in injuries and fatalities to roadway workers; a reduction in trespasser fatalities; a reduction in the severity of railroad worker injuries due to quicker emergency response; a reduction in grade crossing accidents; and a reduction in railroad accidents due to the improper usage of radios. Additionally, FRA anticipates other qualitative benefits accruing from this final rule which have not been factored into the quantified analysis. These include increased efficiency within the industry and a reduction in hazardous material spills.

Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) requires a review of final rules to assess their impact on small entities. FRA's Regulatory Flexibility Assessment can be found in Appendix B of the final rule's Regulatory Impact Analysis, located in the docket.

After consultation with the Office of Advocacy of the Small Business Administration (SBA), FRA decided to use the delineation of fewer than 400,000 annual employee hours to define small entities. This grouping is one that FRA has used in the past (in 49 CFR Parts 217 (Railroad Operating Rules) and 219 (Control of Alcohol and Drug Use)) to define who is subject to

reporting requirements. Typically, FRA uses the Surface Transportation Board's revenue-based classification of Class III railroads as being representative of small entities. Although many Class III railroads have fewer than 400,000 annual employee hours, using 400,000 annual employee hours as the line between small and large entities is preferable since FRA already maintains a database of information on railroads below this cut-off. Additionally, defining small railroads as those with fewer than 400,000 annual employee hours does not automatically exempt switching and terminal railroads, unlike the Class III distinction. By using this grouping for small railroads, FRA captures most small entities that would be defined by the SBA as small businesses.

FRA certifies that this rule is expected to have a significant economic impact on a substantial number of small entities. Approximately 435 small entities will be impacted. However, the actual burden on most of these railroads will vary because of their different operating characteristics. There are no small government jurisdictions affected by this regulation.

Entities that are not subject to this rule include railroads that do not operate on the "general railroad system of transportation" due to FRA's current exercise of its jurisdiction (See 49 CFR Part 209, Appendix A). FRA's jurisdictional approach greatly reduces the number of tourist, scenic, historic, and excursion railroads that are subject to this rule and its associated burdens. FRA estimates that approximately 180 small entities will be exempted from the final requirements of this regulation since they do not operate on the general system of transportation.

The communication requirements pertaining to locomotives, as set forth in § 220.9 of this rule, have been designed to minimize their impact on small railroads. While large railroads are required to have a working radio and wireless communication redundancy in every train, small railroads are only required to comply with this standard for trains used to transport passengers. A radio is required on a freight train operated by a small railroad only when the train operates at greater than 25 miles per hour or engages in joint operations on a large railroad where either the maximum authorized speed for freight trains exceeds 25 miles per hour on the track being used, or the train operates on track adjacent to and within 30 feet of another track on which the maximum speed for passenger trains exceeds 40 miles per hour. Any form of wireless communication device can be

used on a freight train operated by a small railroad when the train is engaged in joint operations with a large railroad and the maximum authorized speed on the track being used is 25 miles per hour or less.

In addition, a wireless communications device is required when a freight train of a small railroad transports hazardous material that is required to be placarded under 49 CFR Part 172 (Hazardous Materials) and does not otherwise fit into one of the above mentioned categories requiring other types of communications equipment. The flexibility afforded to small railroads with these alternatives will lessen the costs imposed on these railroads.

The communications requirements pertaining to roadway workers, as set forth in § 220.11 of this rule, have been designed to minimize their impact on small railroads. Section 220.11(a)'s requirement to equip maintenance-of-way equipment with communications capability upon arriving at a work site does not apply to small railroads. Under § 220.11(b), large railroads must provide each employee responsible for on-track safety and each lone worker with immediate access to a working radio. However, small railroads can instead provide such employees with immediate access to working wireless communications. Small railroads may also be able to avoid any of the communication equipping requirements of § 220.11 if they meet the exceptions set forth in § 220.11(c).

Most small railroads will have a low enough volume and train frequency not to be impacted by the requirements of § 220.11, since § 220.11(c) exempts small railroads that meet certain specified conditions. To qualify for an exemption from § 220.11, a small railroad may not operate a large volume of traffic over a branch line. Generally, the ability of a railroad to perform track-related maintenance on track(s) that are taken out of service is inversely related to the volume and frequency of trains on its branch lines.

Paperwork Statement

The final rule contains new information collection requirements. The information collection requirements currently contained in 49 CFR 220 were approved by the Office of Management and Budget (OMB) under OMB approval numbers 2130-0035 and 2130-0524. These information collection requirements plus the new information collection requirements resulting from this rulemaking have been submitted to OMB for approval under the Paperwork Reduction Act of 1995, 44 U.S.C. 3501

et seq. The sections containing new information collection requirements are listed below. All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information.

CFR section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours	Total annual burden cost
220.8—Waivers	680 railroads	2 letters	1 hour	2 hours	\$50
220.13—Reporting emergencies	680 railroads	N/A	Usual & Customary Practice.	N/A	N/A
*220.21—Railroad operating rules; radio communication; recordkeeping.	680 railroads	N/A	Approved under # 2130-0035.	N/A	N/A
220.23—Publication of radio information	680 railroads	N/A	Usual and Customary Procedure.	N/A	N/A
*220.25—Instruction and operational testing of employees.	N/A	N/A	Approved under # 2130-0035.	N/A	N/A
Instruction—1st Yr.	680 railroads	15,000 instr. sessions.	30 minutes	7,500 hours	187,500
Instruction—Subseq. Yrs.	680 railroads	1,000 instr. sessions.	30 minutes	500 hours	12,500
Periodic operational testing—new requirement.	680 railroads	33,333 tests	15 minutes	8,333 hours	208,325
220.27—Identification	N/A	N/A	Usual and Customary Procedure.	N/A	N/A
220.31—Initiating a radio transmission—identification.	N/A	N/A	Usual and Customary Procedure.	N/A	N/A
220.33—Receiving a radio transmission—acknowledgment.	N/A	N/A	Usual and Customary Procedure.	N/A	N/A
220.35—Ending a radio transmission	N/A	N/A	Usual and Customary Procedure.	N/A	N/A
220.37—Testing radio and wireless communication equipment.	680 railroads	780,000 tests	30 seconds	6,500 hours	162,500
220.38—Communication equipment failure—notification.	N/A	N/A	Usual and Customary Procedure.	N/A	N/A
220.47—Emergency radio transmission	N/A	N/A	Usual and Customary Procedure.	N/A	N/A
220.61—Transmission of mandatory directives.
Copying and repeating of mandatory directive.	680 railroads	7,200,000 directives	1.5 minutes	180,000 hours	5,400,000
Train crews—marking with an X mandatory directives fulfilled or cancelled.	680 railroads	624,000 marks	15 seconds	2,600 hours	\$65,000

FRA cannot impose a penalty on persons for violating information collection requirements which do not display a current OMB control number, if required. FRA will obtain current OMB control numbers for any information collection requirements resulting from this rulemaking action prior to the effective date of the final rule. The valid OMB control number for this information collection is 2130-0524.

List of Subjects in 49 CFR Part 220

Communications, Railroad.

Accordingly, for the reasons stated in the preamble, FRA revises 49 CFR part 220 to read as follows:

PART 220—RAILROAD COMMUNICATIONS

Subpart A—General

Sec.

- 220.1 Scope.
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(Authority: 49 U.S.C. 20103, 20107, 21301, 21304, 21311 (1994); and 49 CFR 1.49.)

Subpart A—General

§ 220.1 Scope.

This part prescribes minimum requirements governing the use of wireless communications in connection with railroad operations. So long as these minimum requirements are met, railroads may adopt additional or more stringent requirements.

§ 220.2 Preemptive effect.

Under 49 U.S.C. 20106 (formerly section 205 of the Federal Railroad Safety Act of 1970, 45 U.S.C. 434), issuance of the regulations in this part preempts any State law, rule, regulation, order, or standard covering the same subject matter, except a provision necessary to eliminate or reduce an essentially local safety hazard that is not incompatible with this part and that does not unreasonably burden interstate commerce.

§ 220.3 Application.

(a) Except as provided in paragraph (b) of this section, this part applies to railroads that operate trains or other rolling equipment on standard gage track which is part of the general railroad system of transportation.

(b) This part does not apply to:

(1) A railroad that operates only on track inside an installation which is not part of the general railroad system of transportation; or

(2) Rapid transit operations in an urban area that are not connected with the general railroad system of transportation.

§ 220.5 Definitions.

As used in this part, the term:

Adjacent tracks means two or more tracks with track centers spaced less than 25 feet apart.

Control center means the locations on a railroad from which the railroad issues instructions governing railroad operations.

Division headquarters means the location designated by the railroad where a high-level operating manager (e.g., a superintendent, division manager, or equivalent), who has jurisdiction over a portion of the railroad, has an office.

Employee means an individual who is engaged or compensated by a railroad or by a contractor to a railroad, who is authorized by a railroad to use its wireless communications in connection with railroad operations.

Immediate access to a radio means a radio on the employee's person, or sufficiently close to the employee to allow the employee to make and receive radio transmissions.

Joint operations means rail operations conducted by more than one railroad on the track of a railroad subject to the requirements of § 220.9(a), except as necessary for the purpose of interchange.

Locomotive means a piece of on-track equipment other than hi-rail, specialized maintenance, or other similar equipment—

(1) With one or more propelling motors designed for moving other equipment;

(2) With one or more propelling motors designed to carry freight or passenger traffic, or both; or

(3) Without propelling motors but with one or more control stands.

Lone worker means an individual roadway worker who is not being afforded on-track safety by another roadway worker, who is not a member of a roadway work group, and who is not engaged in a common task with another roadway worker.

Mandatory directive means any movement authority or speed restriction that affects a railroad operation.

Railroad operation means any activity which affects the movement of a train, locomotive, on-track equipment, or track motor car, singly or in combination with other equipment, on the track of a railroad.

Roadway worker means any employee of a railroad, or of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities or roadway maintenance machinery on or near track or with the potential of fouling a track, and flagmen and watchmen/lookouts.

System headquarters means the location designated by the railroad as the general office for the railroad system.

Train means one or more locomotives coupled with or without cars, requiring an air brake test in accordance with 49 CFR part 232, except during switching operations or where the operation is that of classifying and assembling rail cars within a railroad yard for the purpose of making or breaking up trains.

Working radio means a radio that can communicate with the control center of the railroad (through repeater stations, if necessary to reach the center) from any location within the rail system, except:

(1) Tunnels or other localized places of extreme topography, and

(2) Temporary lapses of coverage due to atmospheric or topographic conditions. In the case of joint operations on another railroad, the radio

must be able to reach the control center of the host railroad.

Working wireless communications means the capability to communicate with either a control center or the emergency responder of a railroad through such means as radio, portable radio, cellular telephone, or other means of two-way communication, from any location within the rail system, except:

(1) Tunnels or other localized places of extreme topography, and

(2) Temporary lapses of coverage due to atmospheric or topographic conditions. In the case of joint operations on another railroad, the radio must be able to reach the control center of the host railroad.

§ 220.7 Penalty.

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 independent contractor providing goods or services to a railroad; and 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 and not more than \$11,000 per violation, except that: Penalties may be assessed against individuals only for willful violations; 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 \$22,000 per violation may be assessed; and the standard of liability for a railroad will vary depending upon the requirement involved. Each day a violation continues shall constitute a separate offense. (See appendix C to this part for a statement of agency civil penalty policy.)

§ 220.8 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.

§ 220.9 Requirements for trains.

(a) Except as provided for in paragraphs (b)(1) through (4) of this section, on and after July 1, 1999, each occupied controlling locomotive in a train shall have a working radio, and each train shall also have communications redundancy. For purposes of this section, "communications redundancy" means a working radio on another locomotive in the consist or other means of working wireless communications.

(b) On and after July 1, 2000, the following requirements apply to a railroad that has fewer than 400,000 annual employee work hours:

(1) Any train that transports passengers shall be equipped with a working radio in the occupied controlling locomotive and with redundant working wireless communications capability in the same manner as provided in paragraph (a) of this section.

(2) Any train that operates at greater than 25 miles per hour; or engages in joint operations on track where the maximum authorized speed for freight trains exceeds 25 miles per hour; or engages in joint operations on a track that is adjacent to and within 30 feet measured between track center lines of another track on which the maximum authorized speed for passenger trains exceeds 40 miles per hour, shall be equipped with a working radio in the occupied controlling locomotive.

(3) Any train that engages in joint operations, where the maximum authorized speed of the track is 25 miles per hour or less, shall be equipped with working wireless communications in the occupied controlling locomotive.

(4) Any train not described in paragraph (b) of this section that transports hazardous material required to be placarded under the provisions of part 172 of this title shall be equipped with working wireless communications in the occupied controlling locomotive.

§ 220.11 Requirements for roadway workers.

(a) On and after July 1, 1999, the following requirements apply to a railroad that has 400,000 or more annual employee work hours:

(1) Maintenance-of-way equipment operating without locomotive assistance between work locations shall have a working radio on at least one such unit in each multiple piece of maintenance-of-way equipment traveling together under the same movement authority.

The operators of each additional piece of maintenance-of-way equipment shall have communications capability with each other.

(2) Each maintenance-of-way work group shall have intra-group communications capability upon arriving at a work site.

(b) On and after July 1, 1999, each employee designated by the employer to provide on-track safety for a roadway work group or groups, and each lone worker, shall be provided, and where practicable, shall maintain immediate access to a working radio. When immediate access to a working radio is not available, the employee responsible for on-track safety or lone worker shall be equipped with a radio capable of monitoring transmissions from train movements in the vicinity. A railroad with fewer than 400,000 annual employee work hours may provide immediate access to working wireless communications as an alternative to a working radio.

(c) This section does not apply to:

(1) Railroads which have fewer than 400,000 annual employee work hours, and which do not operate trains in excess of 25 miles per hour; or

(2) Railroad operations where the work location of the roadway work group or lone worker:

(i) Is physically inaccessible to trains; or

(ii) Has no through traffic or traffic on adjacent tracks during the period when roadway workers will be present.

§ 220.13 Reporting emergencies.

(a) Employees shall immediately report by the quickest means available derailments, collisions, storms, wash-outs, fires, obstructions to tracks, and other hazardous conditions which could result in death or injury, damage to property or serious disruption of railroad operations.

(b) In reporting emergencies, employees shall follow:

(1) The procedures of § 220.47 when using a radio; or

(2) The procedures specified for reporting emergencies in the railroad's timetables or timetable special instructions, when using another means of wireless communications.

(c) Employees shall describe as completely as possible the nature, degree and location of the hazard.

(d) An alternative means of communications capability shall be provided whenever the control center is unattended or unable to receive radio transmissions during a period in which railroad operations are conducted.

Subpart B—Radio and Wireless Communication Procedures

§ 220.21 Railroad operating rules; radio communications; recordkeeping.

(a) The operating rules of each railroad with respect to radio communications shall conform to the requirements of this part.

(b) Thirty days before commencing to use radio communications in connection with railroad operations each railroad shall retain one copy of its current operating rules with respect to radio communications at the locations prescribed in paragraphs (b) (1) and (b)(2) of this section. Each amendment to these operating rules shall be filed at such locations within 30 days after it is issued. These records shall be made available to representatives of the Federal Railroad Administration for inspection and photocopying during normal business hours.

(1) Each Class I railroad, each Class II railroad, each railroad providing intercity rail passenger service, and each railroad providing commuter service in a metropolitan or suburban area shall retain such rules at each of its division headquarters and at its system headquarters; and (2) Each Class III railroad and any other railroad subject to this part but not subject to paragraph (b)(1) of this section shall retain such rules at the system headquarters of the railroad.

(c) For purposes of this section, the terms Class I railroad, Class II railroad, and Class III railroad have the meaning given these terms in 49 CFR Part 1201.

§ 220.23 Publication of radio information.

Each railroad shall designate where radio base stations are installed, where wayside stations may be contacted, and the appropriate radio channels used by these stations in connection with railroad operations by publishing them in a timetable or special instruction. The publication shall indicate the periods during which base and wayside radio stations are operational.

§ 220.25 Instruction and operational testing of employees.

Each employee who a railroad authorizes to use a radio in connection with a railroad operation, shall be:

(a) Provided with a copy of the railroad's operating rules governing the use of radio communication in a railroad operation;

(b) Instructed in the proper use of radio communication as part of the program of instruction prescribed in § 217.11 of this chapter; and

(c) Periodically tested under the operational testing requirements in § 217.9 of this chapter.

§ 220.27 Identification.

(a) Except as provided in paragraph (c) of this section, the identification of each wayside, base or yard station shall include at least the following minimum elements, stated in the order listed:

(1) Name of railroad. An abbreviated name or initial letters of the railroad may be used where the name or initials are in general usage and are understood in the railroad industry; and

(2) Name and location of office or other unique designation.

(b) Except as provided in paragraph (c) of this section, the identification of each mobile station shall consist of the following elements, stated in the order listed:

(1) Name of railroad. An abbreviated name or initial letters of the railroad may be used where the name or initial letters are in general usage and are understood in the railroad industry;

(2) Train name (number), if one has been assigned, or other appropriate unit designation; and

(3) When necessary, the word "locomotive", "motorcar", or other unique identifier which indicates to the listener the precise mobile transmitting station.

(c) If positive identification is achieved in connection with switching, classification, and similar operations wholly within a yard, fixed and mobile units may use short identification after the initial transmission and acknowledgment consistent with applicable Federal Communications Commission regulations governing "Station Identification".

§ 220.29 Statement of letters and numbers in radio communications.

(a) If necessary for clarity, a phonetic alphabet shall be used to pronounce any letter used as an initial, except initial letters of railroads. See appendix A of this part for the recommended phonetic alphabet.

(b) A word which needs to be spelled for clarity, such as a station name, shall first be pronounced, and then spelled. If necessary, the word shall be spelled again, using a phonetic alphabet.

(c) Numbers shall be spoken by digit, except that exact multiples of hundreds and thousands may be stated as such. A decimal point shall be indicated by the words "decimal," "dot," or "point." (See appendix B to this part, for a recommended guide to the pronunciation of numbers.)

§ 220.31 Initiating a radio transmission.

Before transmitting by radio, an employee shall:

(a) Listen to ensure that the channel on which the employee intends to transmit is not already in use;

(b) Identify the employee's station in accordance with the requirements of § 220.27; and

(c) Verify that the employee has made radio contact with the person or station with whom the employee intends to communicate by listening for an acknowledgment. If the station acknowledging the employee's transmission fails to identify itself properly, the employee shall require a proper identification before proceeding with the transmission.

§ 220.33 Receiving a radio transmission.

(a) Upon receiving a radio call, an employee shall promptly acknowledge the call, identifying the employee's station in accordance with the requirements of § 220.27 and stand by to receive. An employee need not attend the radio during the time that this would interfere with other immediate duties relating to the safety of railroad operations.

(b) An employee who receives a transmission shall repeat it to the transmitting party unless the communication:

(1) Relates to yard switching operations;

(2) Is a recorded message from an automatic alarm device; or

(3) Is general in nature and does not contain any information, instruction or advice which could affect the safety of a railroad operation.

§ 220.35 Ending a radio transmission.

(a) Except for transmissions relating to yard switching operations, at the close of each transmission to which a response is expected, the transmitting employee shall say "over" to indicate to the receiving employee that the transmission is ended.

(b) Except for transmissions relating to yard switching operations, at the close of each transmission to which no response is expected, the transmitting employee shall state the employee's identification followed by the word "out" to indicate to the receiving employee that the exchange of transmissions is complete.

§ 220.37 Testing radio and wireless communication equipment.

(a) Each radio, and all primary and redundant wireless communication equipment used under §§ 220.9 and 220.11, shall be tested as soon as practicable to ensure that the equipment

functions as intended prior to the commencement of the work assignment.

(b) The test of a radio shall consist of an exchange of voice transmissions with another radio. The employee receiving the transmission shall advise the employee conducting the test of the clarity of the transmission.

§ 220.38 Communication equipment failure.

(a) Any radio or wireless communication device found not to be functioning as intended when tested pursuant to § 220.37 shall be removed from service and the dispatcher or other employee designated by the railroad shall be so notified as soon as practicable.

(b) If a radio or wireless communication device fails on the controlling locomotive en route, the train may continue until the earlier of—

(1) The next calendar day inspection, or

(2) The nearest forward point where the radio or wireless communication device can be repaired or replaced.

§ 220.39 Continuous radio monitoring.

Each radio used in a railroad operation shall be turned on to the appropriate channel as designated in § 220.23 and adjusted to receive communications.

§ 220.41 [Reserved]

§ 220.43 Radio communications consistent with federal regulations and railroad operating rules.

Radio communication shall not be used in connection with a railroad operation in a manner which conflicts with the requirements of this part, Federal Communication Commission regulations, or the railroad's operating rules. The use of citizen band radios for railroad operating purposes is prohibited.

§ 220.45 Radio communication shall be complete.

Any radio communication which is not fully understood or completed in accordance with the requirements of this part and the operating rules of the railroad, shall not be acted upon and shall be treated as though not sent.

§ 220.47 Emergency radio transmissions.

An initial emergency radio transmission shall be preceded by the word "emergency," repeated three times. An emergency transmission shall have priority over all other transmissions and the frequency or channel shall be kept clear of non-emergency traffic for the duration of the emergency communication.

§ 220.49 Radio communication used in shoving, backing or pushing movements.

When radio communication is used in connection with the shoving, backing or pushing of a train, locomotive, car, or on-track equipment, the employee directing the movement shall specify the distance of the movement, and the movement shall stop in one-half the remaining distance unless additional instructions are received. If the instructions are not understood, the movement shall be stopped immediately and may not be resumed until the misunderstanding has been resolved, radio contact has been restored, or communication has been achieved by hand signals or other procedures in accordance with the operating rules of the railroad.

§ 220.51 Radio communications and signal indications.

(a) No information may be given by radio to a train or engine crew about the position or aspect displayed by a fixed signal. However, a radio may be used by a train crew member to communicate information about the position or aspect displayed by a fixed signal to other members of the same crew.

(b) Except as provided in the railroad's operating rules, radio communication shall not be used to convey instructions which would have the effect of overriding the indication of a fixed signal.

§ 220.61 Radio transmission of mandatory directives.

(a) Each mandatory directive may be transmitted by radio only when authorized by the railroad's operating rules. The directive shall be transmitted in accordance with the railroad's operating rules and the requirements of this part.

(b) The procedure for transmission of a mandatory directive is as follows:

(1) The train dispatcher or operator shall call the addressees of the mandatory directive and state the intention to transmit the mandatory directive.

(2) Before the mandatory directive is transmitted, the employee to receive and copy shall state the employee's name, identification, location, and readiness to receive and copy. An employee operating the controls of moving equipment shall not receive and copy mandatory directives. A mandatory directive shall not be transmitted to employees on moving equipment, if such directive cannot be received and copied without impairing safe operation of the equipment.

(3) A mandatory directive shall be copied in writing by the receiving

employee in the format prescribed in the railroad's operating rules.

(4) After the mandatory directive has been received and copied, it shall be immediately repeated in its entirety. After verifying the accuracy of the repeated mandatory directive, the train dispatcher or operator shall then state the time and name of the employee designated by the railroad who is authorized to issue mandatory directives. An employee copying a mandatory directive shall then acknowledge by repeating the time and name of the employee so designated by the railroad.

(5)(i) For train crews, before a mandatory directive is acted upon, the conductor and engineer shall each have a written copy of the mandatory directive and make certain that the mandatory directive is read and understood by all members of the crew who are responsible for the operation of the train. Mandatory directives which have been fulfilled or canceled shall be marked with an "X" or in accordance with the railroad's operating rules, and retained for the duration of the train crew's work assignment.

(ii) For on-track equipment, before a mandatory directive is acted upon, the employee responsible for on-track safety shall have a written copy of the mandatory directive, and make certain that the mandatory directive is acknowledged by all employees who are responsible for executing that mandatory directive. The employee responsible for on-track safety shall retain a copy of the mandatory directive while it is in effect.

(6) A mandatory directive which has not been completed or which does not comply with the requirements of the railroad's operating rules and this part, may not be acted upon and shall be treated as though not sent. Information contained in a mandatory directive may not be acted upon by persons other than those to whom the mandatory directive is addressed.

Appendix A to Part 220—Recommended Phonetic Alphabet

A—ALFA
 B—BRAVO
 C—CHARLIE
 D—DELTA
 E—ECHO
 F—FOXTROT
 G—GOLF
 H—HOTEL
 I—INDIA
 J—JULIET
 K—KILO
 L—LIMA
 M—MIKE
 N—NOVEMBER
 O—OSCAR
 P—PAPA

Q—QUEBEC
 R—ROMEO
 S—SIERRA
 T—TANGO
 U—UNIFORM
 V—VICTOR
 W—WHISKEY
 X—XRAY
 Y—YANKEE
 Z—ZULU

The letter "ZULU" should be written as "Z" to distinguish it from the numeral "2".

Appendix B to Part 220—Recommended Pronunciation of Numerals

To distinguish numbers from similar sounding words, the word "figures" should be used preceding such numbers. Numbers should be pronounced as follows:

Number	Spoken
0	ZERO.
1	WUN.
2	TOO.
3	THUH-REE-.
4	FO-WER.
5	FI-YIV.
6	SIX.
7	SEVEN.
8	ATE.
9	NINER.

(The figure ZERO should be written as "0" to distinguish it from the letter "O". The figure ONE should be underlined to distinguish it from the letter "I". When railroad rules require that numbers be spelled, these principles do not apply.)

The following examples illustrate the recommended pronunciation of numerals:

Number	Spoken
44	FO-WER FO-WER.
500	FI-YIV HUN-DRED.
1000	WUN THOU-SAND.
1600	WUN SIX HUN-DRED.
14899	WUN FO-WER ATE NINER NINER.
20.3	TOO ZERO DECIMAL THUH-REE.

Appendix C to Part 220—Schedule of Civil Penalties¹

Section	Violation	Willful violation
220.9 Requirements for trains	\$5,000	\$7,500
220.11 Requirements for roadway workers	5,000	7,500
220.21 Railroad Operating rules; radio communications.		
(a)	5,000	7,500
(b)	2,500	5,000
220.23 Publication of radio information	2,500	5,000
220.25 Instruction of employees	5,000	7,500
220.27 Identification	1,000	2,000
220.29 Statement of letters and numbers	1,000	2,000
220.31 Initiating a transmission	1,000	2,000
220.33 Receiving a transmission	1,000	2,000
220.35 Ending a transmission	1,000	2,000
220.37 Voice test	5,000	7,500
220.39 Continuous monitoring	2,500	5,000
220.41 [Reserved] .		
220.43 Communication consistent with the rules	2,500	5,000
220.45 Complete communications	2,500	5,000
220.47 Emergencies	2,500	5,000
220.49 Switching, backing or pushing	5,000	7,500
220.51 Signal indications	5,000	7,500
220.61 Radio transmission of mandatory directives	5,000	7,500

¹ A penalty may be assessed against and only for a willful violation. The Administrator reserves the right to assess a penalty of up to \$22,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A.

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Jolene M. Molitoris,

Federal Railroad Administrator.

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