**DEPARTMENT OF TRANSPORTATION**

**Federal Railroad Administration**

**49 CFR Part 218**

**[Docket No. FRA–2021–0032, Notice No. 5]**

**RIN 2130–AC88**

## Train Crew Size Safety Requirements

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

**ACTION:** Final rule.

**SUMMARY:** FRA is establishing minimum safety requirements for the size of train crews depending on the type of operation. This final rule requires railroad operations to have a minimum of two crewmembers except for certain identified one-person train crew operations that do not pose significant safety risks to railroad employees, the public, or the environment. This final rule includes requirements for railroads seeking to continue certain existing one-person train crew operations and a special approval process for railroads seeking to initiate certain new one-person train crew operations. This final rule also requires each railroad receiving special approval for a one-person train crew operation to submit to FRA an annual report summarizing the safety of the operation.

**DATES:** This regulation is effective June 10, 2024.

**ADDRESSES:** For access to the docket to read background documents or comments received, go to *http://www.regulations.gov* at any time.

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**SUPPLEMENTARY INFORMATION:**

### Abbreviations and Terms Used in This Document

AAR—Association of American Railroads
ACI—American Consumer Institute
AII—Alliance for Innovation and Infrastructure
APTA—American Public Transportation Association
ASLRRA—American Short Line and Regional Railroad Association
ATDA—American Train Dispatchers Association
BLET—Brotherhood of Locomotive Engineers and Trainmen
BMWED—Brotherhood of Maintenance of Way Employes Division
BNSF—BNSF Railway Company
CARS–TC—Citizens Acting for Rail Safety—Twin Cities
CFZ—Critical focus zones
CLF—California Labor Federation
CN—Canadian National Railway Company
Conrail—Consolidated Rail Corporation
CPUC—California Public Utilities Commission
CRC—Commuter Rail Coalition
CTC—Centralized traffic control system
CVR—Cimarron Valley Railroad
Denver RTD—Denver Regional Transportation District
DOT—Department of Transportation
FEC—Florida East Coast Railway
FRA—Federal Railroad Administration
FRFA—Final Regulatory Flexibility Analysis
FTA—Federal Transit Administration
GAO—U.S. Government Accountability Office
GCOR—General Code of Operating Rules
G&U—Grafton and Upton Railroad
INRD—Indiana Rail Road Company
mph—miles per hour
MU—Multiple-unit
NS—Norfolk Southern Railway Company
NPRM—Notice of proposed rulemaking
NPSC—Nebraska Public Service Commission
OMB—Office of Management and Budget
PTC—Positive train control
RCL—Remotely controlled locomotive
RGPC—Rio Grande Pacific Corporation
RIA—Regulatory Impact Analysis
RIN—Regulatory Identification Number
RSAC—Railroad Safety Advisory Committee
RSSM—Rail-security sensitive materials
RWU—Railroad Workers United
SBA—Small Business Administration
SBA-Advocacy—Small Business Administration's Office of Advocacy
Secretary—Secretary of Transportation
SMART–TD—International Association of Sheet Metal, Air, Rail and Transportation Workers Transportation Division
SSO Agency—State Safety Oversight Agency
TFI—The Fertilizer Institute
TSA—Transportation Security Administration
TTD—Transportation Trades Department, AFL–CIO
TWU—Transport Workers Union of America
T&N—Texas and Northern Railway
UP—Union Pacific Railroad Company
UTA—Utah Transit Authority

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## I. Executive Summary

*Purpose of the Regulatory Action*

FRA is issuing this final rule to ensure that trains are adequately staffed for their intended operation and railroads have appropriate safeguards in place for safe train operations whenever using a one-person train crew. The final rule establishes minimum crew size safety standards for all trains, including a risk assessment requirement to evaluate hazards and ensure risk mitigation for those railroads looking to initiate one-person train crew operations in the most complex operating environments nationwide, that will reduce the likelihood of future accidents proactively. As FRA explained in the notice of proposed rulemaking (NPRM), FRA has qualitatively discussed the benefits because it does not have sufficient data to monetize those benefits. However, those benefits have the potential to reduce the likelihood of at least one type of foreseeable accident that is more likely to occur with a one-person train crew than a two-person train crew if a locomotive is not equipped with a safety device that will stop the train when the locomotive engineer is physically unresponsive—even if the type of accident foreseen has not yet occurred. Other qualitative benefits include ensuring that railroads are adequately protecting the safety of a one-person train crewmember or members of the public under various foreseeable circumstances so that employees and communities are not left

in an inferior safety position compared to when a train is staffed with two crewmembers. Without this final rule, FRA has a limited ability to address the totality of potential safety issues related to a reduction of crew staffing levels. Currently, FRA can exercise its authority in discrete instances through the agency's emergency order authority (potentially after a serious accident) or as it reviews a passenger operation's emergency preparedness plan under 49 CFR part 239. Also, no other FRA regulatory effort focuses on the specific hazards and risks associated with a one-person train crew operation, and there is no industry-wide approach to mitigate any such hazards or risks.

Consistent with the purpose of existing requirements for the transportation of hazardous materials by rail,[1] FRA is mandating that each train be assigned a minimum of two crewmembers when transporting certain quantities and types of hazardous materials that have been determined to pose the highest risk in transportation from both a safety and security perspective, with some exceptions to ensure FRA's awareness of the existing operation and/or require an FRA approval, after an opportunity for public input. This final crew size rule is necessary for FRA to proactively protect railroad employees, the public, and the environment during train operations with a one-person train crew, including trains transporting hazardous materials.

This final rule allows FRA to identify and evaluate each railroad that will be operating a freight train with a one-person train crew. By collecting more information about one-person train crew operations, FRA will be better informed to respond to questions about how to maintain the safety of such an operation and be better positioned to take actions that ensure future safety improvements.

This final rule also requires railroads with certain types of one-person train crew operations to notify FRA that they are using such an operation, provide a detailed description of the operation and, in some circumstances, submit a risk assessment and request FRA's approval to continue or initiate an operation. When FRA's approval is necessary, this final rule allows FRA to prohibit the initiation of any proposed one-person train crew operations that would not be as safe or safer than a two-person minimum train crew operation. In addition to the safety benefits from establishing minimum operational requirements, the notification and approval procedures required by the final rule will provide FRA with information and data that could be used in future rulemakings, enforcement actions including emergency or compliance orders/agreements, and safety analyses generally.

Further, the final rule is necessary to establish a process for the public, including rail employees and their labor organization representatives, to comment before FRA decides whether to grant special approval on any railroad's petition to operate a train with a one-person train crew. The public's participation is warranted because any reduction of crew staffing from a two-person train crew could raise numerous general and operational safety concerns.[2] Further exacerbating the safety concerns regarding any reduction in crew size is that the average length of a Class I freight train has grown substantially in recent years, to nearly 3 miles in some cases, as train length and tonnage add to the complexity and safety challenges of these operations.[3]

In issuing this final rule, FRA will ensure that laws, regulations, and orders ''related to railroad safety'' with respect to train crew size are nationally uniform [4] by preventing varying State laws regulating crew size from creating a patchwork of potentially inconsistent rules governing train operations across the country. Without this rule, railroads could be subjected to a different crew staffing law in every State in which they operate, as there would be no assurance that State laws governing crew size would be based on an analysis or determination concerning impacts on railroad safety. The lack of a uniform standard would likely result in additional costs and operational inefficiencies.

Lastly, this final rule is necessary because the latest annual rail safety data reflects some troubling trends that point toward a need for heightened caution and awareness in railroad safety and operational planning. For instance, a second crewmember provides the opportunity to secure a train with hand brakes, as a one-person train crew could not do so without violating railroad air brake and train handling requirements necessary to comply with FRA's regulations requiring that ''railroads shall develop and implement a process or procedure to verify that the applied hand brakes will sufficiently hold the equipment with the air brakes released [and] that a train's air brake shall not be depended upon to hold equipment standing unattended.'' [5] The rate for all human factor caused accidents increased from 0.95 accidents per million train miles to 1.34 between 2013 and 2022, a 41.1 percent increase, and from 1.18 accidents per million train miles to 1.34 between 2021 and 2022, a 13.6 percent increase.[6] The percentage of train accidents attributed solely to human factors (as reflected in FRA's accident reporting cause codes) increased from 38.5 percent to 45.6 percent between 2013 and 2022. The number of main track train handling and make-up accidents attributed to human factor cause codes has increased from 28 in 2013 to a range between 36 and 77 (reflecting occurrences between 2018 and 2022), a 28.6 to 75 percent increase. When normalizing this data by the number of train miles, it shows a rate increase from 0.04 in 2013 to 0.07 in 2022, reaching as high as 0.10 and 0.13 during this period, a range that increased 25 to 225 percent over the five-year period between 2018 and 2022.

[1] The proposed rule contains extensive background explaining that the Federal government recognizes how essential hazardous materials are to the U.S. economy and the well-being of its people, and the various Federal requirements for the training of rail employees and other safeguards to help ensure that these materials will be shipped and arrive safely at their destinations. 87 FR 45564, 45576 (July 28, 2022).

[2] FRA's rules of practice generally encourage participation by interested persons. 49 CFR 211.3. For example, public participation is encouraged when FRA considers a waiver petition, and the dockets for those petitions are publicly available. 49 CFR part 211, subpart C. Some of FRA's rail safety regulations also require a railroad to notify a labor organization's president of the submission to FRA of a railroad safety program, such as a training or certification program to ensure that the relevant representatives for employees have an opportunity to participate in the process. *See e.g.,* 49 CFR 240.103(b), 242.103(c), and 243.109(d). Because FRA has similarly determined in this instance that employees and communities have an interest in a railroad's operation relative to the issue of train crew size safety, the final rule ensures the participation of interested members of the public, including rail employees and their labor organization representatives.

[3] ''Rail Safety: Freight Trains Are Getting Longer, and Additional Information is Needed to Assess Their Impact,'' U.S. Government Accountability Office (GAO) (May 2019). *https://www.gao.gov/products/gao-19-443.*

[4] 49 U.S.C. 20106(a)(1).

[5] 49 CFR 232.103(n)(1) and (2). In the event that an uncontrolled train movement causes an accident or derailment, the presence of a second crewmember who failed to apply sufficient hand brakes does not negate the need for a second crewmember. Contributing causes to such derailments and other preventable accidents could include improper railroad rules or training, or a failure of the second crewmember to comply with such requirements. In contrast, the absence of the second crewmember restricts the options immediately available and potentially leaves the one-person train crewmember vulnerable, without viable mitigation measures available until assistance can arrive. This dilemma can largely be avoided with a proper risk assessment.

[6] The data described in this paragraph is available or derived from data publicly available on FRA's website. *https://data.transportation.gov/stories/s/FRA-Safety-Data/dakf-i7zd.*

*Summary of Major Provisions*

In § 218.123, the final rule requires railroads to staff every train operation with a minimum of two crewmembers (including a locomotive engineer and an additional crewmember who will typically be a conductor) that travel with the train and can directly communicate with each other even if one crewmember is not in the locomotive cab, with certain one-person train crew exceptions permitted under specified circumstances.

Sections 218.125 through 218.131 of this final rule provide criteria for instituting one-person train crew operations in certain circumstances through exceptions to the two-crewmember mandate, conditional exceptions based on the type of operation, or a special approval process option. These avenues of relief address operations by small businesses, which for purposes of this rulemaking are primarily short lines and regional railroads. The final rule will give small businesses greater flexibility without sacrificing safety, since the operations of railroads that qualify as small businesses are generally less complex than the operations of Class I railroads.

Sections 218.129 and 218.131 of this final rule require each railroad with certain types of one-person train crew operations to abide by minimum requirements notably to: (1) prevent uncontrolled train movements if a one-person train crew were to become incapacitated; (2) maintain communication between a railroad employee, typically a dispatcher, a supervisor or manager, or an intermittently assisting crewmember, and the one-person train crewmember to convey operational instructions and ensure the one-person crewmember's personal safety; (3) track the location of a train operated by a one-person crew in case communication is lost and a rescue operation needs to be initiated; and (4) establish protocols that ensure rail employees can take mitigation measures that provide a level of safety that is as safe or safer than a two-person train crew operation to address certain situations, such as an accidental or non-accidental release of any hazardous material, with the one-person train crew operation.

Section 218.129 of this final rule, which contains conditional exceptions based on the type of operation, requires the lead locomotive of certain operations with a one-person crew be equipped with an alerter[7] and that the crewmember must test the alerter to confirm it is working before departure. Without a working alerter on the controlling locomotive, if a one-person train crew becomes incapacitated while the train is moving, the train would continue to operate down the track out of control without another crewmember on-board who could apply the emergency brake. In contrast, with an alerter, the train would be stopped with an emergency brake application after a designated period of inactivity by the crewmember.[8]

In addition to an alerter requirement for certain one-person train crew operations in § 218.129, the final rule establishes other minimum safety requirements depending on the type of one-person train crew operation, such as for Class II and III legacy freight train operations (*i.e.,* currently existing one-person crew operations established for at least two years before the effective date of the final rule), certain other Class II and III freight railroad train operations, work train operations, helper service train operations, and lite locomotive train operations. For instance, the final rule requires that each railroad with these types of operations, excepted from the final rule's two-crewmember mandate, must adopt and comply with operating rules that provide for regular and effective communication with a one-person train crew to ensure the safety of the train and that one-person train crewmember's safety. Short lines do not always use dispatchers, and short line trains may not have a working radio or other working wireless communications in the cab of a controlling locomotive, so the requirement to provide for regular and effective communication is an important safeguard.[9] Further, the final rule requires that each railroad with these types of one-person train crew operations adopt and comply with operating rules providing for mitigation measures that are as safe or safer than a two-person minimum train crew operation to ensure the railroad will address certain situations where a second crewmember would typically assist with mitigation, such as when responding to accidents, derailments, releases of hazardous materials, and requests from an emergency responder to unblock a highway-rail grade crossing in response to a potentially life-threatening situation. The final rule requires that each Class II and III freight railroad that (a) plans to initiate a one-person train crew operation after the final rule's effective date and (b) will not be transporting certain types or quantities of hazardous materials determined to pose the highest risk in transportation, must provide FRA with written notification of the operation before commencing the operation, in addition to complying with the alerter, communication, and mitigation measures requirements.

The final rule establishes an implementation schedule in § 218.129 that phases in compliance for certain specified one-person train crew operations, such as for each Class II and III railroad with a legacy one-person train crew freight train operation, that provides FRA with written notice of the operation, and for any railroad with a one-person train crew work train operation, helper service train operation, or lite locomotive train operation. The implementation schedule requires these specified exceptions to the two-crewmember mandate to be governed by operating rules addressing the communication requirements and mitigation measures requirements no later than 90 days from the effective date of this final rule, and the working alerter requirement to be met no later than two years from the effective date of this final rule. FRA encourages each railroad with one or more of these types of one-person train crew operations to implement the requirements sooner than the implementation schedule requires but finds that the schedule will provide each railroad with sufficient time either to comply with the alerter, communication, and mitigation measures requirements or provide for a second crewmember.

To ensure that each railroad adequately identifies hazards and mitigates risks when initiating or continuing certain new one-person train crew operations, § 218.131 of this final rule requires a railroad's petition for special approval of a one-person train crew operation to include a risk

[7] 49 CFR 229.5 (defining alerter as a device or system installed in the locomotive cab to promote continuous, active locomotive engineer attentiveness by monitoring select locomotive engineer-induced control activities. If fluctuation of a monitored locomotive engineer-induced control activity is not detected within a predetermined time, a sequence of audible and visual alarms is activated to progressively prompt a response by the locomotive engineer. Failure by the locomotive engineer to institute a change of state in a monitored control, or acknowledge the alerter alarm activity through a manual reset provision, results in a penalty brake application that brings the locomotive or train to a stop).

[8] *See id.* and *see e.g.,* 49 CFR 229.140 (requiring that an alerter warning timing cycle interval be based on a formula that includes a calculation of train speed and that for locomotives operating at speeds below 20 mph, the interval shall be between 110 seconds and 130 seconds).

[9] 49 CFR 220.9; 63 FR 47182, 47188 (Sept. 4, 1998) (explaining in the section-by-section analysis that ''[n]o 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'').

assessment. The purpose of a risk assessment is to evaluate risk in an objective manner by following a decision-making process designed to systematically identify hazards, assess the degree of risk associated with those hazards, and based on those assessed risks, identify and implement measures to minimize or mitigate the risks to an acceptable level. Except for certain one-person legacy operations,[10] FRA will require a risk assessment and a special approval process for most one-person train crew operations that will be transporting 20 or more car loads or intermodal portable tank loads of certain hazardous materials or one or more car loads of hazardous materials designated as rail-security sensitive materials (RSSM) as defined by the Department of Homeland Security. The requirements in the final rule focus on known safety and security risks associated with operating trains transporting large amounts of hazardous materials and with transporting the hazardous materials known to present the greatest safety and security risks. As explained in the NPRM, FRA considers: train crewmembers to be ''hazmat employees'' requiring specific types of training; that these training requirements are substantial; that these various types of training are required initially and recurrently at least once every three years; and that, in addition to FRA, there are Federal agencies that enforce requirements regarding the safety and security of hazardous materials shipments.[11] Thus, the transportation of hazardous materials raises various specific safety hazards, such as the potential for an accidental or non-accidental release of a hazardous material, that would typically create additional tasks for a train crew to communicate information about an immediate or developing safety situation and/or take immediate or other appropriate action to mitigate its consequences, when safe to do so. For these reasons, the presence of certain types or quantities of hazardous materials creates the potential for a greater negative consequence than when a train does not contain such materials. Without a properly completed risk assessment, FRA would be unable to accurately assess whether a railroad has taken appropriate measures to compensate for the removal of a second train crewmember. In the circumstance that a railroad wants to continue a one-person train crew operation that does not meet the legacy operation conditions, the final rule provides conditions under which a railroad may continue those operations while it drafts and submits a special approval petition and awaits FRA's decision on that petition.

As FRA explained in the NPRM, passenger and tourist train operations normally have a locomotive engineer located in the locomotive cab, and a passenger conductor, and potentially one or more assistant conductors, riding in the passenger cars with the passengers.[12] FRA makes clear that this common crew configuration is not considered a one-person train crew operation. In § 218.125, the final rule exempts from the two-crewmember mandate specific passenger and tourist train operations that do not pose significant safety risks to railroad employees, the public, or the environment, including tourist train operations that are not part of the general system of transportation. Passenger or tourist operations that do not fall within the § 218.125 exemptions must petition FRA for a special approval under the procedures provided in § 218.131.

In the context of this rulemaking, a risk assessment is the process of determining, either quantitatively or qualitatively, or both, the level of risk associated with a proposed train operation staffed with a one-person train crew, including mitigating the risks to an acceptable level. Section 218.133 of this final rule provides the minimum content that must be included in a railroad's risk assessment and the procedures for petitioning FRA to use an alternate methodology for assessing the risk of an operation utilizing a one-person train crew. This final rule adds appendix E to part 218 to provide guidance on how a railroad may prepare a risk-based hazard analysis, as part of its risk assessment, and compare the risks to determine if a proposed one-person train crew operation will be as safe or safer than a two-person minimum train crew operation, when all mitigations are in place.

In § 218.135, the final rule specifies how a railroad may petition FRA for special approval of a one-person train crew operation not covered by an exception. The special approval procedure requires FRA to publish a notice in the **Federal Register** soliciting public comment on each petition. All documents will be filed in a public docket and will be accessible through the internet. The special approval procedure permits FRA to reopen consideration of the petition for cause stated. When FRA decides a petition, or reopens consideration of a petition, it will send written notice of the decision to the petitioner, and the decision will be published in the docket. Further, a railroad making a material modification to an operation, previously approved by FRA, will be required to file both a description of the modification and either a new or updated risk assessment, at least 60 days before proposing to implement any such modification. FRA is requiring that a material modification not be implemented until approved. The requirement to seek special approval is not expected to delay action on any operation because each railroad would need an equivalent timeframe to plan for the process of reducing crew size in advance of implementation of that operation even in the absence of this rule.

Section 218.137 of this final rule includes an annual reporting requirement for railroads that receive special approval to conduct an operation with a one-person train crew under this subpart. The annual railroad responsibilities after receipt of special approval include a requirement to conduct a formal review and analysis of those operations. The annual reporting requirement ensures that each railroad will regularly review the safety of its operation and the accuracy of its risk assessment and will provide FRA with sufficient data to identify and analyze any safety trends in the approved operation. Further, the annual reporting requirement aligns with the general administration of FRA's safety program and fulfilment of its statutory requirements.[13]

Finally, as explained in greater detail in the discussion of comments and conclusions, the final rule clarifies and updates the NPRM in some respects based upon the comments received. For instance, as the NPRM did not define what FRA meant by the term ''one-person train crew'' and commenters

[10] Among other operations, § 218.129(a)(1) does not require a risk assessment or a special approval process for a Class II and III railroad's legacy one-person train crew freight operation, *i.e.,* an operation existing before the effective date of the final rule, that has been established for at least two years before the effective date of the final rule. However, such a freight railroad with a legacy one-person train crew operation must provide certain information about the operation in a written notification to FRA, and the railroad will be required to establish operating rules addressing the communication requirements and mitigation measures requirements no later than 90 days from the effective date of this final rule and to meet the working alerter requirement no later than two years from the effective date of this final rule.

[11] 87 FR 45576–78.

[12] 87 FR 45579–80.

[13] *See e.g.,* 49 U.S.C. 103(j) and (k) (requiring the FRA Administrator to develop long-range national rail plans, and performance goals and reports for those plans that are typically updated annually).

expressed confusion, FRA has clarified that a ''one-person train crew'' means: (1) only one person is assigned to the train as the train crew and that single, assigned person will be performing the duties of both the locomotive engineer and the conductor; or (2) two or more persons are assigned to a train as the train's crew, but only the locomotive engineer travels on the train when the train is moving because the remainder of the train crew, including the conductor if the locomotive engineer is not the assigned conductor, is assigned to intermittently assist the train's movements. The requirements in this final rule will not apply to a train operation controlled by a remote control operator, even if that remotely controlled train is operated by a one-person train crew, because of the protections already provided for remote control operations under existing requirements in FRA's railroad locomotive safety standards, including a harness with a breakaway safety feature, an operator alertness device, and an operator tilt feature with an automatic notification to the railroad to enable prompt attention in the event the tilt feature is activated.[14] There are two existing passenger train operations with one-person train crews for which FRA has already approved the operation's required passenger train emergency preparedness plans under existing regulatory requirements, making it unnecessary for those railroads to submit a special approval petition to FRA as proposed. The final rule does not include the proposed requirement for railroads seeking to implement automated operations to file a petition seeking FRA's special approval. Such a requirement is unnecessary because railroads would still need to seek waivers, regulatory changes, or other FRA approval if the technology for the automated operations does not comply with other rail safety requirements.

The final rule contains some clarifications and updates from the NPRM in how it treats freight railroads, especially Class II and III railroads that include the short line and regional railroads. For instance, the final rule will not prohibit all one-person train crew freight operations hauling certain types or quantities of hazardous materials, as the final rule provides for some exceptions for existing or initiating operations. Those Class II and III railroads with a legacy one-person train crew freight operation that is established at least two years before the effective date of this final rule will not need FRA's special approval to continue the operation as proposed but will need to provide FRA with a detailed written notice describing the parameters of the operation within 90 days of the effective date of the final rule. Similarly, the final rule does not include a requirement for Class II and III railroads initiating a new, non-legacy, one-person train crew freight operation not transporting hazardous materials of the types or quantities specified to petition FRA for special approval and, instead, permits such operations, under certain conditions—including when the railroad provides FRA with a detailed written notice describing the parameters of the operation before commencing the operation. The exceptions in the final rule for Class II and III railroads have made unnecessary the narrower, proposed small railroad exception, which would have applied only to small railroads with fewer than 400,000 annual employee work hours, and thus the final rule does not include that proposed exception. Although various proposed exceptions contained additional safety requirements, the final rule streamlined those additional requirements and has established a compliance schedule for implementing them rather than the proposal that would have required implementation on the effective date of the final rule.

The final rule requires additional safety conditions to be met for the proposed one-person crew helper service and lite locomotive(s) consist exceptions as those one-person crew train crew operations would pose the same safety concerns as other exceptions in the final rule that require additional safety conditions to be met. In addition, FRA has modified the risk assessment requirements, allowing a railroad to make its determination either quantitatively or qualitatively, or both, rather than only quantitatively as expressly proposed. Finally, FRA has changed the review standard for a special approval petition from determining that an operation is ''consistent with railroad safety'' to determining whether approving the operation described in the petition is ''as safe or safer'' than a two-person train crew operation, as it will more clearly allow each railroad to compare the operation to the baseline of a two-crewmember operation.

[14] *See* 49 CFR 229.15 (requiring design, operation, inspection, testing, and repair standards for remote control locomotives).

IMPLEMENTATION SCHEDULE FOR ONE-PERSON TRAIN CREW OPERATIONS [15]

| Type of one-person operation | Notify FRA of one-person operation [16] | Petition for special approval with risk assessment for one-person operation [17] | Add operating rules to address safety of certain situations [18] | Add operating rules for one-person crew member's safety [19] | Add alerters to locomotives and add associated operating rules [20] | Annual review analysis report [21] |
|---|---|---|---|---|---|---|
| Class II/III legacy freight (existing 2 years) [22]. | September 6, 2024 | Not Applicable (N/A) | September 6, 2024 | September 6, 2024 | June 9, 2026 ..... | N/A. |
| Class II/III freight non-legacy or new, and no prohibited hazmat [23]. | Yes, provide before commencing operation. | N/A ..... | Yes, comply when commencing operation. | Yes, comply when commencing operation. | Yes, comply when commencing operation. | N/A. |
| Work trains not exceeding 4,000 trailing tons; [24] Helper service; [25] and, Lite locomotive(s) [26]. | N/A ..... | N/A ..... | September 6, 2024 | September 6, 2024 | June 9, 2026 ..... | N/A. |
| Existing but non-legacy (existing, but less than 2 years) option to continue pending FRA-approval [27]. | June 23, 2024 [28] ..... | August 7, 2024 ..... | Yes, provide as part of special approval petition. | Yes, provide as part of special approval petition. | Yes, provide as part of special approval petition. | Yes, provide no later than March 31 of the following year. |
| Other new (freight with or without prohibited hazmat, passenger, or tourist) operations [29]. | N/A ..... | Yes ..... | Yes, provide as part of special approval petition. | Yes, provide as part of special approval petition. | Yes, provide as part of special approval petition. | Yes, provide no later than March 31 of the following year. |

*Costs and Benefits*

FRA has analyzed the economic impact of this final rule. FRA estimated the costs associated with alerters, operating rules, notification to FRA, risk assessments and special approvals, annual reporting after receipt of special approval, and Government administration. FRA qualitatively discusses the benefits but does not have sufficient data to quantify those benefits.

The following types of railroads with one-person train crew operations are required, based on a compliance date schedule, to: (1) notify FRA; (2) adopt and comply with operating rules necessary to ensure the one-person train crewmember's safety and that the railroad is prepared to take appropriate mitigation measures in response to certain safety-critical situations; and (3) equip a one-person train crew's controlling locomotive with an alerter:

- Class II and Class III freight railroads with a legacy one-person train crew operation established for at least two years before the effective date of the final rule.
- Class II and Class III freight railroads with a non-legacy one-person train crew operation that do not transport specific types and quantities of hazardous materials as specified in § 218.123(c).

The following types of railroads with a one-person train crew operation require special approval from FRA and must conduct a risk assessment:

- All Class I railroads and all one-person passenger railroad operations established after the effective date of the final rule.
- All Class II and III freight railroads with a non-legacy one-person train crew operation that transports certain types and quantities of hazardous materials as specified in § 218.123(c).

Work train operations, helper service, and lite locomotive operations are required, based on a compliance date schedule, to: (1) adopt and comply with operating rules necessary to ensure the one-person train crewmember's safety and that the railroad is prepared to take appropriate mitigation measures in response to certain safety-critical situations; and (2) equip a one-person train crew's controlling locomotive with an alerter.

FRA estimates the 10-year costs of the final rule to be approximately $6.6 million, discounted at 7 percent. The annualized costs will be approximately $0.9 million discounted at 7 percent. The following table shows the total costs of this final rule, over the 10-year analysis period.

TOTAL 10-YEAR DISCOUNTED COSTS

[2022 Dollars] [30]

| Category | Total cost, 7 percent ($) | Total cost, 3 percent ($) | Annualized cost, 7 percent ($) | Annualized cost, 3 percent ($) |
|---|---|---|---|---|
| Alerters (Legacy Operations) | 2,176,402 | 2,217,233 | 309,871 | 259,927 |
| Alerters (New Operations) | 2,251,306 | 2,483,470 | 320,535 | 291,138 |
| Operating Rules (Existing Operations) | 119,954 | 119,954 | 17,079 | 14,062 |
| Operating Rules (New Operations) | 280,824 | 308,591 | 39,983 | 36,176 |
| Notification (Existing Operations) | 185,114 | 185,114 | 26,356 | 21,701 |
| Notification (New Operations) | 111,133 | 122,593 | 15,823 | 14,372 |
| Risk Assessment and Special Approval (Class I) | 560,745 | 570,571 | 79,837 | 66,888 |
| Risk Assessment and Special Approval (Class II and III) | 162,446 | 164,506 | 23,129 | 19,285 |

[15] This implementation schedule summarizes the requirements and is not intended to substitute for an exact description of the complete requirements.

[16] § 218.129(b).

[17] § 218.131 through § 218.135.

[18] § 218.129(c)(1).

[19] § 218.129(c)(2).

[20] § 218.129(c)(3).

[21] § 218.137.

[22] § 218.129(a)(1).

[23] § 218.129(a)(2).

[24] § 218.129(a)(3).

[25] § 218.129(a)(4).

[26] § 218.129(a)(5).

[27] § 218.131(a)(2).

[28] § 218.131(a)(2)(i). Unlike the other notification requirements, this notification can be limited to a summary of the operation and the name, title, address, telephone number, and email address of the primary person(s) to be contacted regarding the written notice and the operation.

[29] § 218.131.

TOTAL 10-YEAR DISCOUNTED COSTS—Continued

[2022 Dollars] [30]

| Category | Total cost, 7 percent ($) | Total cost, 3 percent ($) | Annualized cost, 7 percent ($) | Annualized cost, 3 percent ($) |
|---|---|---|---|---|
| Risk Assessment (Material Modifications) | 93,031 | 111,178 | 13,246 | 13,033 |
| Annual Reporting | 182,821 | 221,284 | 26,030 | 25,941 |
| Government Administrative Cost | 513,100 | 579,523 | 73,054 | 67,938 |
| Total Costs | 6,636,876 | 7,084,016 | 944,942 | 830,463 |

The primary benefit of this rule is to ensure that each train is adequately staffed and has appropriate safeguards in place for safe train operations under all operating conditions. This final rule will also ensure that several significant operational safety issues with one-person train crew are addressed and allow FRA to collect information and data on one-person train crews. For instance, this final rule addresses a safety issue by requiring alerters for Class II and III railroads operating with a one-person train crew that do not already have these safety devices installed on their locomotives for that type of operation. Alerters will ensure that if a crewmember becomes physically unresponsive, the train will apply emergency brakes—a function typically left to a conductor or other second crewmember.

This final rule also ensures railroads address safety issues that may arise with one-person train crew operations by requiring operating rules that address the communication and safety of the one-person train crew.

To operate with one-person train crews, freight railroads transporting certain types and quantities of hazardous materials must identify, evaluate, and address safety concerns that may arise from such operations by submitting a risk assessment to FRA for approval unless the railroad is a Class II or III short line or regional railroad and has established a legacy operation under the exception.[31]

The loss of a second crewmember to perform safety functions creates new hazards and/or increases the risk of certain existing hazards unless mitigating actions are taken.[32] The safety requirements in this final rule will allow the rail industry to integrate technologies to facilitate operations with a one-person train crew, but under the condition that safety will not be degraded.

*Legal Authority*

FRA is establishing regulations concerning train crew size safety requirements based on the statutory general authority of the Secretary of Transportation (Secretary). The general authority states, in relevant part, that the Secretary ''as necessary, shall prescribe regulations and issue orders for every area of railroad safety supplementing laws and regulations in effect on October 16, 1970.'' [33] The Secretary delegated this authority to the Federal Railroad Administrator.[34] Additionally, as described below, the Secretary has the specific statutory duty to prescribe regulations and issue orders for the certification of any train crewmembers who operate a locomotive or are assigned train conductors.

By statute, the Secretary is required to ''prescribe regulations and issue orders to establish a program requiring the licensing or certification . . . of any operator of a locomotive.'' [35] FRA fulfilled that statutory requirement in 1991 by issuing a regulation requiring each railroad to file a locomotive engineer certification program with FRA.[36] Each railroad's program must specify how the railroad plans to make the determinations necessary to certify each of its locomotive engineers, as well as ensure that the certified locomotive engineers of other railroads are qualified to operate safely on the controlling railroad's track.[37] A locomotive engineer's main task is to operate the train safely. Other important tasks central to safe operation include: ensuring that the locomotive mechanical requirements are met; coordinating with the conductor about operational details; and, under the conductor's supervision, interpreting train orders, signals, and operating rules.

FRA also administers and enforces statutorily mandated [38] conductor certification requirements.[39] FRA defines a conductor as the crewmember in charge of a train or yard crew,[40] and the conductor's job requires supervising train operations so they are safe and efficient. The conductor's responsibilities include: managing the train consist; coordinating with the locomotive engineer for safe and efficient en route operation; interacting with dispatchers, roadway workers, and others outside the locomotive cab; and dealing with unexpected situations (*e.g.,* mechanical problems).[41] In addition, as locomotive and train technologies have become more complex in recent years, a conductor (or second crewmember) can assist a locomotive engineer by responding to technology prompts or conveying information displayed so that the engineer can maintain focus on the train's controls and movement. The purpose of the conductor certification regulation is to ensure that only those persons meeting minimum Federal safety standards serve as conductors.

[30] Numbers in this table and subsequent tables may not sum due to rounding. As discussed further in section VI.I of the RIA, quantified costs do not include costs that could be incurred in order to mitigate risks associated with a reduction in the number of crewmembers. The costs for operating rules (existing operations) and notification (existing operations) will solely be incurred in year 1. Therefore, the discounted costs are the same for 7% and 3% (since values are not discounted in year 1). However, when annualizing costs over 10 years, the discounted costs at 7% and 3% are different because they are annualized with different discount rates.

[31] §§ 218.129(a)(1) and 218.131.

[32] As explained in the NPRM, ''the implementation of a one-person operation, without any off-setting measures, may render existing rail safety requirements either less effective or ineffective.'' 87 FR 45573.

[33] 49 U.S.C. 20103.

[34] 49 CFR 1.89(a); 49 U.S.C. 103(g).

[35] 49 U.S.C. 20135.

[36] 56 FR 28254 (June 19, 1991), 49 CFR part 240.

[37] 49 CFR part 240, subpart B—Component Elements of the Certification Process, and § 240.229 (requiring certain action on the part of a railroad controlling the conduct of joint operations with another railroad). Additional guidance was provided in an interpretation published August 29, 2008. 73 FR 50883.

[38] 49 U.S.C. 20163, ''Certification of train conductors.''

[39] 49 CFR part 242, ''Qualification and Certification of Conductors.''

[40] 49 CFR 242.7 (defining ''conductor'').

[41] Rosenhand, Hadar, Emilie Roth, and Jordan Multer, Cognitive and Collaborative Demands of Freight Conductor Activities: Results and Implications of a Cognitive Task Analysis, FRA (July 2012).

When FRA published the conductor certification final rule, the agency made clear that the rule should not be read as FRA's endorsement of any particular crew consist arrangement.[42] However, if only one railroad employee is assigned as a train crew, the conductor certification rule requires that the single assigned crewmember be certified as both a locomotive engineer and a conductor.[43] This final rule maintains that one-person train crew option but adds restrictions to ensure safety, based on the type of operation.

In this regard, the final rule is an element of FRA's holistic approach to address a range of hazards related to the operation of trains. As noted above, FRA is authorized by statute to prescribe regulations and issue orders for ''every area of railroad safety'' supplementing laws and regulations in effect on October 16, 1970, as well as to continue to administer and enforce specific statutory mandates, including locomotive engineer and conductor certification requirements.[44] Specifically, given FRA's mandate to ''consider the assignment and maintenance of safety as the highest priority, recognizing the clear intent, encouragement, and dedication of Congress to the furtherance of the highest degree of safety in railroad transportation,'' [45] FRA finds issuance of this final rule on train crew size safety both inherent in its statutory authority and in fulfillment of its charge from Congress. However, FRA recognizes that certain provisions focus on unique factors. Therefore, FRA finds that the various provisions of this final rule are severable and able to operate functionally if severed from each other. In the event a court were to invalidate one or more of this final rule's unique provisions, the remaining provisions should stand, thus allowing FRA to continue to fulfill its congressionally authorized role.

## II. Discussion of Comments and FRA's Conclusions

### *A. Overview of Comments*

On July 28, 2022, FRA published the NPRM proposing train crew size safety requirements and provided commenters 60 days to file comments.[46] On September 22, 2022, FRA extended the comment period by an additional 67 days.[47] On October 27, 2022, FRA scheduled a public hearing for December 14, 2022, and extended the comment period to December 21, 2022, an additional 19 days, to provide the public with additional time to comment on the proposed rule or submit a response to views or information provided at the public hearing, or both.[48] A transcript of the public hearing is available in the docket.[49]

During the 146-day comment period, the docket recorded approximately 13,576 separate entries for written comments with about 13,441 of those comments filed by individuals in their own names. In other words, about 99 percent of the written comments submitted to the docket were from individual commenters who were not filing their comment officially on behalf of an organization, group, or business. Of those individual commenters, about 13,377 expressed support for the NPRM and 64 opposed it, meaning less than approximately a half percent of individual commenters expressed opposition to the proposed rule. FRA estimates that more than half of the comments filed by individual citizen commenters used a form letter created by a labor organization or other organized interest group. In general, commenters who signed form letters in support of a two-person train crew mandate expressed the same types of safety concerns FRA raised in the NPRM. This final rule addresses those safety concerns to ensure the safety of rail operations, one-person train crewmembers, and the public. When summarizing a form letter, a footnote will cite to a single example.

The docket's recorded number of comments does not include the comments received through oral testimony at the public hearing on December 14, 2022, and there are other reasons why the 13,576 count should be considered only an approximation. As some entries included multiple comments or were signed by multiple people, there were likely more commenters than the number of comments recorded by the docket. Further, FRA discovered that some commenters sent in multiple comments. Because the comment period was extended twice, some commenters sent in a shorter comment before any extensions were granted, and then may have sent in more information as they developed further input. Every comment received was considered by the agency in finalizing this rule.

The order of the topics or comments discussed in this document is not intended to reflect the significance of the comment raised or the standing of the commenter. Additionally, this summary of the comments is intended to provide both a general understanding of the overall scope and themes raised by the commenters, as well as give some specific descriptions to provide context. Not every comment is described in this summary and, whenever counts of comments are provided, the counts are approximate as some comments could not be easily grouped with others. Comments regarding the proposed Regulatory Impact Analysis (RIA) are addressed in the RIA to the final rule.

In addition to the following summary of the general comments here, FRA used computer-based data analysis to identify common elements among comments.[50] FRA's computer-based data analysis often provided confirmation of FRA's manual estimates and insight, and additional insight into the written comments that would have been particularly difficult to discern based on human review alone. For example, the computer-based analysis more accurately identified comments that were identical than a human could track manually.[51] The computer-based data analysis could also readily find comments that used the same key words to allow FRA to review those comments together.[52] There were also many short comments and the computer-based data analysis was able to pick out those shorter comments and display them all in a few pages that could be more easily accessed and read.[53] The computer-based approach used natural language processing, specifically topic modeling, to extract major themes for the comments received based on the most frequently used words and phrases, which then assisted FRA in identifying the central themes raised by the commenters.[54]

Based on the comments received, FRA is revising aspects of the approach reflected in the NPRM, which can be

[42] 76 FR 69802, 69825 (Nov. 9, 2011).

[43] 49 CFR 240.308(c) and 242.213(d).

[44] *See* 49 U.S.C. 103, 20103(a).

[45] *Id.* at 103(c).

[46] 87 FR 45564.

[47] 87 FR 57863.

[48] 87 FR 65021.

[49] *https://www.regulations.gov/document/FRA-2021-0032-13184.*

[50] The 23-page computer-based data analysis report of the written comments was placed in the docket, FRA–2021–0032, with the other agency documents under the ''Browse Documents'' tab.

[51] The computer-based data analysis found one particular comment duplicated 2,065 times and which cites FRA–2021–0032–1914 as an example.

[52] For example, on pages 9–10 of the computer-based data analysis report, the term ''cut crossings'' was found used in approximately 45 comments.

[53] For instance, the computer-based data analysis report displays comments with less than 75 characters on pages 11–14.

[54] On pages 15–21, the computer-based data analysis report includes examples of the 10 themes identified when top words, *i.e.,* commonly used words, were extracted through topic modeling. For instance, a select group of top words included: emergency, life medical, community, supply chain, death, derailments, and vulnerable.

summarized as follows: (1) the final rule removes the previously-proposed strict prohibition on the transportation of some hazardous materials with a one-person train crew; (2) comments on FRA's proposed RIA led FRA to consider additional information and refine its analysis; (3) comments requesting more time to comply with any new minimum requirements to allow for planning, operational changes, or hiring and training of additional crewmembers led FRA to extend those compliance dates; (4) comments regarding the complexity of, and data requirements for, the risk assessment, along with concerns regarding the analytical methods required, led FRA to simplify the requirement, change the review standard so that a railroad can compare the operation to the baseline of a two-crewmember operation, provide guidance in an appendix, and retain an option for railroads to request use of alternative risk assessment methodologies as part of the special approval procedure; (5) comments outlining anticipated difficulties in complying with the risk assessment proposed in the NPRM led FRA to remove the risk assessment requirement and substitute a notification requirement for Class II or III freight railroads under certain types of specified operations; (6) comments about the proposed requirements for remote control operations, in addition to FRA's analysis that existing regulations already provided for minimum safety protections, led FRA to remove the subject from the final rule; and (7) comments on the potential preemptive effect of a Federal rail safety regulation on currently existing State-by-State regulation relating to the subject matter of crew size safety requirements led FRA to clarify what the agency understands will be the legal impact of this final rule.

*B. Preemption*

In the NPRM, FRA included in the background a summary of prior crew staffing rulemaking efforts. The summary discussed the decision issued by the U.S. Court of Appeals for the Ninth Circuit vacating FRA's withdrawal of the 2016 NPRM, as well as FRA's preemption determination contained in that withdrawal, and remanding the rulemaking to FRA.[55] The NPRM also included discussion of FRA's legal authority to issue the regulation[56] and the statutory preemption provisions found at 49 U.S.C. 20106.[57] As noted in the NPRM, a final rule issued by FRA ''would cover the same subject matter as the State laws regulating crew size, and therefore FRA expects a final rule will have preemptive effect on those State laws that are Statewide in character and do not address narrow, local safety hazards.'' [58] The NPRM then requested comments on the issue of preemption.

The California Public Utilities Commission (CPUC) commented that the final rule should reflect or exceed ''the strongest state laws that currently exist.'' [59] For that reason, CPUC is opposed to the NPRM to the extent it could undermine California's law which has a more stringent two-person crew mandate than FRA's proposed rule with exemptions. CPUC requested that FRA ''provide a stronger role for State agencies, such as [CPUC, and suggested that] FRA could require a railroad to seek a [S]tate agency's concurrence prior to applying for an exemption.'' [60] CPUC commented that because ''a [S]tate will have unique information regarding specific hazards or environmental concerns within [the State's] borders . . . [a] petitioning railroad should solicit the [S]tate agency's input . . . and the petitioning railroad should include [that information] in its petition to the FRA . . . .'' [61] CPUC also requested that FRA ''establish a clearly defined role for [S]tate agencies to provide input and the ability to revoke [an exemption] if safety issues arise that make the exemption untenable.'' [62]

A one-page letter signed by 19 senators from the Washington State Legislature commented that Washington has a law regulating train crew size and urged FRA not to preempt train crew size laws already passed by States when those laws meet or exceed Federal crew size standards.[63] Similarly, the Washington State Legislative Board of the Transportation Division of the International Association of Sheet Metal, Air, Rail and Transportation Workers (SMART–TD) commented that ''while [it] strongly support[s] FRA's adopting a national minimum train crew size rule [it] oppose[s] any regulatory language that would preempt [S]tate laws and regulations that are equal to or more stringent than a [F]ederal'' requirement.[64]

Many individuals and labor organizations commented that they supported the NPRM but wanted FRA to consider a way to avoid preempting State laws that have more stringent requirements. For example, the Transportation Trades Department, AFL–CIO (TTD) would like FRA's regulation to establish minimum safety requirements but not preempt States from setting more stringent requirements.[65] SMART–TD's Kansas State Legislative Board, however, supported eliminating the existing patchwork of State laws regarding crew size and creating a nationwide standard.[66]

A comment in support of FRA's preemption position came from 54 Members of the U.S. House of Representatives, recognizing that the State laws mandating minimum crew size requirements have been overturned by courts finding that the Federal government has jurisdiction over this subject matter.[67] For this reason, these U.S. House Members commented that it is FRA's responsibility to address this safety issue, calling it urgent because of the drastic changes in the freight rail industry over the last several years.'' [68]

Norfolk Southern Railway Company (NS) commented that while it agrees that a national rule addressing crew size would be consistent with Congress' express goal that Federal laws and regulations relating to railroad safety create national uniformity, it opposes this rule for a variety of reasons,

[55] 87 FR at 45568–70 (citing *Transp. Div. of the Int'l Ass'n of Sheet Metal, Air, Rail & Transp. Workers* v. *FRA,* 988 F.3d 1170 (9th Cir. 2021).

[56] 87 FR at 45567 and 49 U.S.C. 20103 (citing, in relevant part, that the Secretary ''as necessary, shall prescribe regulations and issue orders for every area of railroad safety supplementing laws and regulations in effect on October 16, 1970'').

[57] 87 FR at 45570–71 (citing the statutory preemption provisions in 49 U.S.C. 20106 that mandate that laws, regulations, and orders ''related to railroad safety'' be nationally uniform, and that a Federal regulation or order covers the subject matter of a State law where ''the [F]ederal regulations substantially subsume the subject matter of the relevant [S]tate law'').

[58] 87 FR at 45571. As noted below, there is a narrow exception to the preemption provisions that allows non-Federal regulation of ''essentially local'' safety hazards. 49 U.S.C. 20106(a)(2).

[59] FRA–2021–0032–12258 at 2. CPUC's comment did not distinguish between exemptions and one-person train crew operations proposed for a special approval process, calling the portions of the NPRM that would allow for fewer than two train crewmembers an ''exemption process.''

[60] *Id.*

[61] *Id.*

[62] *Id. at 3.*

[63] FRA–2021–0032–12202.

[64] FRA–2021–0032–12917 at 1. The State of Washington's Utilities and Transportation Commission also commented in strong support of the NPRM, citing the importance to protect the public and the environment from potential disaster involving hazardous train derailments during a period in which railroads are using longer trains, without mentioning preemption of Washington State's laws. FRA–2021–0032–12746.

[65] FRA–2021–0032–12306 and FRA–2021–0032–13049.

[66] FRA–2021–0032–9397.

[67] FRA–2021–0032–12809 (a duplicate comment was filed at FRA–2021–0032–12971).

[68] *Id.* at 2.

including that the NPRM would be ''burdensome'' and that FRA neglected to mention in the NPRM that some States' laws have been invalidated.[69] NS stated that ''[p]reemption cannot justify FRA's imposition of this particular rule'' because of the harm the NPRM could cause the rail industry.[70]

SMART–TD's Illinois Legislative Board (SMART–TD ILB) commented in support of the NPRM and provided a supporting letter from Illinois Governor J.B. Pritzker.[71] The comment stated that a court had vacated an Illinois law requiring most freight trains operating in Illinois to have an operating crew of at least two individuals[72] and that SMART–TD ILB and Governor Pritzker support the NPRM as an alternative to the preempted Illinois law.

FRA's Response

As explained in the NPRM, FRA recognizes that, if the issue of crew size safety is left to be governed by a patchwork of State laws, logistically it may become impossible for a railroad to even consider operations with fewer than two crewmembers. Thus, this rulemaking is intended to set forth a nationwide rule for crew size safety, especially operations with a one-person train crew, based on FRA's expertise and experience in regulating safety and risks in rail operations. While courts may find that some of those State laws are preempted even without this rule, other State laws may not be challenged and found preempted, leaving an untenable inconsistency governing crew size. This final rule meets Congress' mandate that the laws, regulations, and orders related to railroad safety be nationally uniform.

While FRA intends this final rule to create a nationwide standard and anticipates that it will preempt State laws covering the same subject matter, FRA clarified in the NPRM that FRA's statutory preemption provision includes a ''narrow exception''[73] to FRA's broad authority to preempt State laws. This narrow exception allows non-Federal regulation of ''essentially local'' safety hazards.[74] An ''essentially local safety hazard'' is ''one which is not adequately encompassed within national uniform standards.''[75] As noted in the NPRM, some State laws governing crew size, such as those in California, Nevada, and Washington, do not, in FRA's view, address an ''essentially local'' hazard because they would apply statewide.[76] In support of this view, FRA explained in the NPRM that legislative history and subsequent judicial decisions indicate the narrow exception is intended to allow States to respond to local situations not capable of being adequately addressed in uniform national standards, but local safety hazards cannot be Statewide.[77]

In response to CPUC and other similar commenters who requested that FRA provide States with a clear role in FRA's exemption provision, this final rule provides that the public may comment on any special approval petition as FRA proposed in the NPRM. FRA encourages States and their regulatory agencies to comment on requests for one-crew operations and provide any safety information or data they believe would be useful to FRA in deciding whether to approve a special approval petition for a one-person train crew operation.

As an alternative to issuing a narrowly tailored State law to address any essentially local safety hazards, a State could bring any safety concerns about a particular rail operation to FRA's attention for discussion or possible investigation. For example, a State agency that participates in investigative and surveillance activities with FRA under 49 CFR part 212 can work with FRA to enforce this final rule.[78]

FRA disagrees with NS's comment that FRA is relying on preemption as a justification for the final rule. As explained above, FRA is issuing this final rule to ensure that trains are adequately staffed for their intended operation and railroads have appropriate safeguards in place for safe train operations, especially when using one-person train crews. Moreover, this final rule meets Congress' requirement that the laws, regulations, and orders related to railroad safety be nationally uniform.[79] Thus, FRA is not basing its justification for this final rule on preemption, but rather is noting that the national, uniform standard provided in this rule is expected to preempt State laws governing crew size.

*C. Comments Supporting the NPRM*

In the NPRM, FRA explained how the Ninth Circuit's decision to vacate and remand the 2019 withdrawal left FRA with some choices on a path forward, and FRA exercised its discretion to choose, through this rulemaking, to reconsider numerous safety issues that may be associated with or impacted by one-person train crew operations.[80] For instance, FRA revisited the lack of a Federal requirement for a systematic post-accident protocol for trains hauling freight.[81] The NPRM also raised several other potential safety issues to consider, including the context that many of the Federal rail safety regulations were written with the expectation that each train would have multiple crewmembers, the safety findings drawn from research on the cognitive and collaborative demands placed on train crewmembers while operating a train, and the ability of railroads to respond to a one-person train crewmember who may become incapacitated.[82]

Many commenters supported FRA's decision in the NPRM to reconsider the safety issues and propose minimum requirements for the size of train crews depending on the type of operation. These commenters are concerned, among other things, about the operational safety of a train operated by a one-person crew, the operational safeguards to protect that crewmember in various situations, and the impact of one-person train crew operations that travel through their communities as evidenced by the numerous comments received raising those concerns.

1. Labor Organizations

The Brotherhood of Locomotive Engineers and Trainmen (BLET) and SMART–TD filed a joint comment stating that their unions, which represent the vast majority of operating train crew workers across the nation, support the implementation of a two-person crew rule in the interest of public safety and request that the final

[69] FRA–2021–0032–13045.

[70] *Id.* at 6.

[71] FRA–2021–0032–10530.

[72] *Id.* at 2 (referring to, but not citing, *Ind. Rail Rd. Co.* v. *Ill. Commerce Comm'n,* 576 F. Supp. 3d 571 (N.D. Ill. 2021).

[73] 87 FR at 45570–71 (citing *Duluth, Winnipeg & Pac. Ry. Co.* v. *City of Orr,* 529 F.3d 794, 796 (8th Cir. 2008) in which the court found 49 U.S.C. 20106(a) ''creates a narrow exception to preemption through its savings clause'').

[74] 49 U.S.C. 20106(a)(2).

[75] *Union Pacific R. Co.* v. *California Pub. Utils. Comm'n,* 346 F.3d 851, 860 (9th Cir. 2003).

[76] 49 U.S.C. 20106(a)(2); H.R. Rep. No. 91–1194 (1970), *reprinted in* 1970 U.S.C.C.A.N. 4104, 4117 (''these local hazards would not be statewide in character''); *see also Norfolk & Western Ry. Co.* v. *Public Utilities Comm'n of Ohio,* 926 F.2d 567, 571 (6th Cir. 1991) and *National Ass'n of Regulatory Util. Comm'rs* v. *Coleman,* 542 F.2d 11, 14–15 (3d Cir. 1976) (both holding that the local hazard exception cannot be applied to uphold the application of a statewide rule).

[77] 87 FR at 45571 (citing H.R. Rep. No. 91–1194 (1970), *reprinted in* 1970 U.S.C.C.A.N. 4104, 4117).

[78] Part 212 establishes standards and procedures for State participation in investigative and surveillance activities under the Federal railroad safety laws and regulations.

[79] 49 U.S.C. 20106.

[80] 87 FR at 45571–76.

[81] 87 FR 45571.

[82] *See e.g.,* 49 CFR 218.99 (requiring point protection for shoving or pushing moves; 218.103–218.107 (operational requirements for hand-operated switches) and generally, 49 CFR part 239 (Passenger Train Emergency Preparedness requirements).

rule ''mandate that two-person crews are the standard as they have proven to be the safest and most efficient way to operate.'' [83] In addition, the International Brotherhood of Teamsters, which includes BLET as part of the Teamsters Rail Conference, commented that it supports FRA's efforts to promulgate the NPRM and endorsed BLET's comment.[84] The jointly filed written comment, and BLET and SMART–TD's oral testimony at FRA's public hearing, detailed their members' interest in this safety rulemaking. For example, BLET and SMART–TD are concerned with the multiple steps a one-person train crew approaching a roadway work zone would need to perform alone and the risks to rail employees working on or near the track if that single crewmember made a mistake. The unions' jointly filed comment also noted how many railroads embraced greater electronic device use, such as cellphone use, as a pivotal component of their plans to reduce crew size even though electronic device use is currently strictly regulated because of those devices' potential for distraction.[85] BLET and SMART–TD also described how trains are routinely slowed by unplanned events that require someone other than the locomotive engineer to troubleshoot the problem before the train can continue and how a conductor and a locomotive engineer work as a team during any necessary troubleshooting. Moreover, the labor organizations' jointly filed comment noted that a two-person train crew provides a backstop to human error, which is still useful with a positive train control (PTC) system, and that, even when there is a low incidence of rail accidents, the consequence of an accident can be high and thereby justify an additional fail-safe measure.

BLET and SMART–TD commented that their members who have experienced PTC implementation first-hand, expressed that they want PTC as a tool but recognize that PTC was not designed to do the job of a crewmember supplementing the engineer. Further, the unions jointly commented that PTC ''has introduced new complexities and levels of attention capture not seen prior to the implementation of PTC and has emphasized the need for a conductor on board due to the added level of distraction PTC has imposed upon the engineer.'' [86] BLET and SMART–TD commented that PTC and other technologies often involve after-market products bolted on, rather than integrated into, existing equipment which makes the locomotive cab feel crowded with technology and, in turn, can complicate the jobs of the train crewmembers. BLET and SMART–TD also commented that automated fuel-saving software programs currently are programmed without regard to bad weather or less-than-optimal conditions, potentially requiring a locomotive engineer to intervene manually. BLET and SMART–TD also commented that the industry's increased reliance on distributed power operations (*i.e.,* where an engineer must control two or more locomotives independently with the aid of computers) means that the locomotive engineer must direct significant attention to computer screens; in their view, the NPRM did not adequately consider the safety considerations of using a one-person train crew with a distributed power operation, which ''takes much of the engineer's attention away from the view forward.'' [87]

During the public hearing, BLET's National Legislative Representative, who described himself as a former freight locomotive engineer on a Class I railroad for 18 years, testified in overall support of the NPRM and included comments regarding BLET's concerns with some of the proposed exceptions to the two-person train crew mandate. BLET testified that a locomotive engineer is not a mobile member of the train crew because that person is responsible for the physical manipulation of the controls of the locomotive and the monitoring of on-board systems. BLET stated that for an engineer to leave the locomotive cab unattended as a one-person train crew, the engineer must complete a time-consuming series of steps that includes disabling the locomotive's controls, setting the train's air brakes, securing the locomotive and train with hand brakes, and following rules or procedures that confirm the train is properly secured. In explaining how PTC has made a train crew's job more difficult, BLET testified that PTC has introduced new complexities and can reduce a crewmember's situational awareness such as when a dispatcher references a mandatory directive over the radio and a locomotive engineer must toggle between display screens to understand the directive the dispatcher is referencing. BLET raised concern that railroads are reducing crew size to increase corporate profits while ignoring rules or cutting corners on safety. BLET's testimony also reiterated concern in BLET and SMART–TD's jointly filed written comment that FRA reconsider some of the proposed exceptions to a two-crewmember mandate as those operations may not as safe or simple as FRA suggested in the NPRM.

During FRA's public hearing, SMART–TD's President testified about the general dangers of railroad work and that safety cannot be expected to improve by reducing the number of train crewmembers when the workforce is already depleted and overworked. SMART–TD's President testified that ''the carriers regularly argue that there is no data to support a two-person crew being safer than a one-person crew . . . [and t]he irony . . . is that likewise there is no data to support that a one-person or autonomous operation is any safer than that of a two-person crew in freight operations.'' SMART–TD's President also described an incident when he was a locomotive engineer on a coal train and his conductor warned him of a young child on the track. SMART–TD's President testified that he blew the horn and rang the bell, but the boy did not move, and he credited the conductor for saving the child's life because the conductor ran out on the nose of the engine and waved in a manner that led the child to step out of the way. SMART–TD's President concluded that his experience demonstrates the effectiveness of two crewmembers working as a team as it is important to have the conductor make track observations when a locomotive engineer may be distracted by monitoring the controls or interacting with a computer screen. SMART–TD testified that, in addition to a backup observation role, a conductor can contribute knowledge and decision-making judgment, especially when responding to non-routine situations. SMART–TD testified about PTC's limitations and how a conductor can identify washouts, rockslides, fires, vehicles, and pedestrians, but PTC cannot. SMART–TD described how a one-person crew would be unlikely to assist anyone injured in a highway-rail grade crossing collision nor would the one-person crew be able to assist first responders as easily as a conductor or quickly assess damage from a derailment.

During FRA's public hearing, a member of SMART–TD who described himself as a conductor with 18 years of experience stated that the proposed crew size safety requirements are

[83] FRA–2021–0032–13038 at 1.

[84] FRA–2021–0032–13050.

[85] *See* 49 CFR part 220, subpart C (specifying its purpose ''is to reduce safety risks resulting from railroad operating employees being distracted by the inappropriate use of electronic devices, such as mobile telephones (cell phones or cellular phones) and laptop computers'').

[86] FRA–2021–0032–13038 at 2.

[87] FRA–2021–0032–13038 at 6.

important because the workforce is already strained and the recent doubling of one-and-a-half-mile-long trains would make a complex job unsafe with a one-person train crew.[88] This SMART–TD member described the importance of multi-person crews being able to mentor one another and provide backup. Specifically, he explained that a one-person crew will be physically and psychologically challenged because of the jobs' many demands, such as the need to look at three different computer screens in the locomotive cab while continuing to monitor conditions ahead, and due to working alone without human interaction or even the freedom to listen to music. He also stated that a person working alone will lose a layer of safety that is not fully replaced by PTC. Further, this SMART–TD member testified about an incident in which he was a train crewmember and the PTC system allowed his crew to operate the train with PTC enabled even though nobody entered the number of axles in the train, a potential safety concern in the way the PTC system would govern the train. This SMART–TD member also stated that, as a former U.S. Navy combat medic, he was trained to spot medical concerns and, in his rail work experience, it has been necessary for him to have fellow crewmembers removed for medical emergencies, illnesses, and fatigue. Thus, he noted that one-person train crews, who do not remove themselves from train operations when they are tired or sick, will pose a greater safety risk than two-person train crews where the second crewmember can mitigate the risk of a sick or tired crewmember.

TTD commented that it consists of 37 affiliated unions representing the totality of rail labor, including both passenger and freight rail workers, and specifically the locomotive engineer and conductor employees who will be most impacted by the NPRM.[89] TTD's President also presented oral testimony at FRA's public hearing. Overall, TTD commented that it supported the NPRM and urged FRA to adopt more stringent requirements than proposed by eliminating or changing the option for a railroad to use ''an alterative risk assessment process in lieu of the proposed risk assessment'' and by requiring that a second crewmember be a certified conductor.[90] TTD stated that FRA's NPRM recognized the ''fundamental truths [that] . . . crew size is directly correlated to the safe operation of trains [and that] . . . reducing the number of [crewmembers] creates substantial safety risks that need to be addressed . . . [because the] crewmembers have complementary[,] but distinct[,] responsibilities.'' [91] TTD commented that a Class I railroad's video shown at the public hearing to demonstrate operations using ground-based conductors described a scenario occurring ''under ideal circumstances in terms of [a ground-based conductor] being able to locate and access [a] site without any difficulty [as a person] arriving from off-site is likely going to be severely delayed.'' [92]

TTD also highlighted a comment from its affiliate, the International Association of Fire Fighters, that first responders on-scene rely on train crews to provide critical cargo information and services such as separating train cars, and with only one crewmember there is no redundancy and a much higher risk of first responders not receiving crucial information.[93]

Labor organizations, such as BLET, SMART–TD, and TTD, requested that FRA reconsider the remote control operations exception and asked whether additional regulations of remote control operations are needed to allow remote control operators to safely operate over any distance. These commenters do not seek FRA to regulate remote control operations through this rulemaking, as they viewed the proposed exception as allowing such operations without establishing other necessary safety requirements. These labor organization commenters took the position that FRA should, outside of this rulemaking, take action to review all remote control operation related accidents, regardless of whether the accidents occurred during train or switching operations, and then consider whether to seek input from FRA's Federal advisory committee, the Railroad Safety Advisory Committee (RSAC), or otherwise initiate a rulemaking covering comprehensive safety requirements for remote control operations.

The Brotherhood of Maintenance of Way Employes Division (BMWED), which represents employees who inspect, install, construct, repair, and maintain railroad track, roadbed, and related right-of-way infrastructure on all Class I railroads, advocated for a locomotive engineer and a conductor two-person train crew for every freight train operating over the general railroad system.[94] BMWED's comment stated that two-person crews provide necessary checks and balances for the operation of the train and its securement at terminal points, yards, and sidings.

The American Train Dispatchers Association (ATDA) commented in support of the proposed rule, emphasizing the safety need for a dispatcher to immediately communicate instructions or orders to a train en route.[95] ATDA is concerned that a one-person train crew might not always be able to receive communications, thereby creating a substantial hazard to rail employees and the public. Also, ATDA commented that railroad safety is improved by the regular crew communications to dispatchers and that it will be unrealistic for a one-person crew to accomplish all the crew's regular duties and continue to report other safety information, including the location of young children near the tracks, visible track- and structure-related defects or damage, and potential problems on trains passed such as shifted loads and equipment dragging.[96]

The Transport Workers Union of America (TWU), which represents a variety of rail employees, including those who inspect and repair equipment and track at several Class I railroads and some of the northeast's largest regional rail systems, commented in support of the rule, emphasizing the safety need for a second crewmember to assist carmen who are dispatched when a train develops mechanical problems en route.[97] TWU explained that a single carman is often dispatched to make such a mechanical repair and, on these occasions for safety reasons, it is necessary for a conductor to assist the carman in making the inspection and necessary repairs.

In addition, BLET Division 446 from Belen, New Mexico,[98] described how its members operate trains over remote landscapes that are not readily accessible by motor vehicle, and thus indicated that a two-person train crew is vital to survival in medical or other emergency situations.

Further, the California Labor Federation (CLF), AFL–CIO [99] noted a two-person train crew is better able to monitor events both inside and outside the locomotive cab than can a single crewmember, thereby providing greater

[88] This SMART–TD witness at the hearing is also the Secretary of SMART–TD's Maryland State Legislative Board as identified in that organization's comment. FRA–2021–0032–6937.

[89] FRA–2021–0032–12306 and FRA–2021–0032–13049.

[90] FRA–2021–0032–12306 and FRA–2021–0032–13049 at 2.

[91] FRA–2021–0032–12306 and FRA–2021–0032–13049 at 5.

[92] FRA–2021–0032–13049 at 13.

[93] FRA–2021–0032–5247.

[94] FRA–2021–0032–12213.

[95] FRA–2021–0032–13016.

[96] *Id.* at 3.

[97] FRA–2021–0032–12281.

[98] FRA–2021–0032–8741.

[99] FRA–2021–0032–10712.

situational awareness. CLF also explained how a second crewmember can fill in knowledge gaps and keep the locomotive engineer alert when that engineer is fatigued.[100]

2. Individual Commenters

A short form letter was used in approximately 3,658 comments to express opposition to one-person crews, asserting that ''[h]aving multiple crewmembers working at all times protects against medical emergencies and derailments.'' [101] The form letter also suggested an economic argument that railroads were motivated to reduce train crew size by ''Wall Street greed'' and that one-person train crews could be connected to future supply chain disruptions.

Further, approximately 469 commenters submitted a short form letter which stated that two pairs of eyes are better than one and compared a train crew to an airline crew, but suggested rail posed greater risks because freight trains transport hazardous or flammable materials and spent nuclear rods.[102]

Another form letter sent by approximately 29 individual commenters stated their shared concern that a lone crewmember would not be able to address train malfunctions or grade crossing incidents or assist emergency response personnel as quickly as a two-person crew could, leaving their community in harm's way.[103] For this reason, these commenters supported FRA's proposal to establish minimum requirements for the size of crews operating trains.

In a similar example of a form letter supporting a two-person crew mandate, FRA received nine identical comments mailed and docketed together as a single comment from individuals expressing concern that a lone crewmember would not be able to address train malfunctions or grade crossing incidents or assist emergency response personnel as quickly as a two-person crew could.[104]

During FRA's public hearing, a commenter identified herself as a conductor with ten years of experience for the Union Pacific Railroad Company (UP).[105] The commenter stated that she is concerned with an overreliance on technology that does not always work as intended. She also disagreed with UP's testimony that having a conductor in a truck would be a faster way of alleviating a mechanical repair to a train versus a conductor who travels with the train.

Numerous individual commenters provided first-hand accounts of close calls and lives saved by the action of two crewmembers working as a team. These commenters largely provided anecdotal information supporting why they thought trains staffed with fewer than two persons created unsafe conditions. Individual commenters sometimes used a form letter provided by an organizing association or union but added their personalized statement to make it unique. Because there are so many of these types of comments in the record, the following examples are provided as a sampling and not an exhaustive summary.

A short form letter comment supporting a two-person train crew mandate was used in approximately 2,574 comments and was written from the perspective of rail employees who are currently train crewmembers.[106] The form letter captured the person's support for FRA revisiting research described in the NPRM that scrutinizes the cognitive and collaborative demands placed on each crewmember, and how multiple crewmembers can work together as an effective, safe team. This form letter also raised concerns with technology and other job-related stressors and concluded that having a work partner helps get the job done.

A commenter who identified himself as having 22 years of experience as a conductor and several leadership roles in SMART–TD supported the NPRM, as he viewed a two-person train crew requirement as vital to safe freight operations largely because of the hazards related to trains hauling hazardous materials.[107] The commenter pointed to trends he has observed, stating that the length and weight of freight trains are increasing, thereby impacting the distance needed to stop the train in case of emergency and increasing the probability of an accident/incident. The commenter also stated that a derailment or accident involving a long train hauling mainly hazardous materials could pose a more widespread danger zone than a shorter train. His stated concerns included protecting communities and schools located near railroad tracks. The commenter also stated that communities impacted by stopped trains blocking crossings would be worse off because it would take significantly longer for a railroad to manually separate the train and unblock the crossing if a conductor is not on the train to assist. Further, the commenter raised the issue of how two crewmembers keep each other alert and on task, and that having an accountability partner is the number one tool used by crews to combat fatigue.

An individual commented that he was a conductor on a train that struck a delivery truck at a highway-rail grade crossing.[108] The commenter explained that while the locomotive engineer began the process of stopping the train, he immediately called the dispatcher to arrange for emergency first responders. According to the commenter's description, he was off the train before it stopped so that he could run back to the crossing and help a passerby pull the unconscious truck driver out and away from the truck before the truck was engulfed in flames. He was then available to assist first responders, to split or secure the train or answer any questions as needed. The commenter contrasted his accident description with how he believes the incident would have unfolded if the train had been operated by a one-person crew. Under the commenter's theoretical scenario, the locomotive engineer would make an emergency brake application, dial the emergency number, and provide the milepost location. The engineer would not be able to provide the dispatcher with the DOT grade crossing number until the train was stopped and the number could be safely found in reference materials. The commenter explained that with a one-person crew the dispatcher would call for emergency first responders, but the engineer could not leave the train to assist the driver because the engineer would have a duty to secure an unattended train with hand brakes first. According to the commenter, without a second crewmember, other factors would determine whether the driver would have been rescued in time, and the one-person crewmember would feel helpless as the crewmember would be required to remain on the train unable to help anyone injured or readily assist first responders. The commenter also stated that FRA's proposed rule was not stringent enough in that two-person train crews are necessary for all train movements to ensure safety.

A commenter described a situation when he was part of a freight train crew that had an emergency brake application in a town.[109] Because the train was blocking the town's highway-rail grade crossings for at least 15 minutes and

[100] A similar comment was received from the Oklahoma AFL–CIO. FRA–2021–0032–10355.

[101] FRA–2021–0032–2764.

[102] FRA–2021–0032–10974 is a representative example of this group of comments.

[103] FRA–2021–0032–11120.

[104] FRA–2021–0032–10465.

[105] FRA–2021–0032–13184.

[106] FRA–2021–0032–8789.

[107] FRA–2021–0032–9893.

[108] FRA–2021–0032–12240.

[109] FRA–2021–0032–0970.

preventing an ambulance from crossing the tracks, a dispatcher requested that the crew cut a crossing to allow the ambulance by. The commenter is concerned that without a second crewmember, situations like this would occur, and it is unclear how long it would take a railroad to open a crossing for local emergency responders.

A commenter expressed several safety concerns as a freight train conductor for over 19 years.[110] For instance, the commenter expressed frustration that railroads do not keep track of incidents in which trains with two crewmembers saved lives or prevented accidents. He explained that he has crewed trains involved in accidents at rail-highway grade crossings and derailments of cars transporting hazardous materials, and how two crewmembers can more easily prevent harm to the public by taking quick action or relaying information to emergency responders. He also expressed concerns with a one-person train crew suffering from fatigue.

A commenter described that he is both a locomotive engineer and conductor who has experienced firsthand why it is imperative to public safety that each train have a minimum of two crewmembers.[111] The commenter described an incident in which the train he was conducting crashed into a car at a highway-rail grade crossing during winter. The commenter explained that, with two crewmembers, he was free to help the driver of the motor vehicle that was in a ditch, while the engineer stayed with the locomotive to coordinate with local emergency responders, monitor the air brake system, and perform other duties necessary to maintain the safety of rail operations.

An individual commented that he has over twenty years experience as a conductor and engineer for a Class I freight railroad and raised many safety issues.[112] For instance, the commenter expressed concern that a one-person train crew that significantly relies on PTC and other technologies to safeguard and operate the train will encounter difficulties when one or more technologies fail or are unavailable as the person's ability to operate in manual mode could have deteriorated from disuse and that there are examples of this problem in the airline industry. The commenter also made a case for redundancy, noting that in the motor vehicle context, Federal law mandates cars be manufactured with seat belts and States enforce laws governing the use of seat belts even though air bags could have arguably replaced the seat belt. The commenter pointed out that, in his experience, railroads have largely held both crewmembers responsible for the safe operation of the train and compliance with operating rules and practices because doing so enhances safety.

Additionally, this same commenter stated that he disagreed with railroad commenters who suggested a conductor in a truck could substitute for a conductor on the train. He commented that he is familiar with a territory that would not be accessible by truck and, therefore, a conductor in a truck would be delayed getting to and fixing a problem involving the train. In addition, the commenter stated that a locomotive engineer can often determine the approximate location of a broken knuckle and a conductor can replace it with a new knuckle as a relatively routine repair. He stated that in his short experience, he has fixed three broken knuckles and took 30 to 45 minutes to make a replacement. He also described an incident where he changed a knuckle even though the railroad sent a carman out to do it, and he was done with the repair before the carman arrived about 90 minutes later.

This same commenter also described a situation with a one-person train that operates into a mile-long tunnel on the territory he works. According to the commenter, because the tunnel does not have any ventilation, if the train has any issues where it might have to stop in the tunnel, the crew is instructed to cut the crew's locomotives from the train and get out of the tunnel before the tunnel fills with carbon monoxide. During this tunnel operation, the commenter theorized that it would be impossible for a one-person crew to create enough pin slack to separate the locomotives from the rest of the train to escape the tunnel by operating the locomotives.

During FRA's public hearing, a commenter identified herself as a BLET National Auxiliary, Second Vice President, and Legislative Representative from Lakeside, Nebraska.[113] The commenter also identified herself as the concerned wife of a BNSF Railway Company (BNSF) locomotive engineer whom she does not want to operate trains alone, noting in particular a past medical event. She also expressed concern about a one-person train crewmember suffering from fatigue, isolation, and depression. Further, the commenter was concerned that training programs for one-person train crews will be inadequate, noting that when railroads removed the brakeman position to reduce train crew size to two crewmembers, the quality of the training was reduced to accommodate the large number of brakemen who were trained for conductor positions.

During FRA's public hearing, another commenter stated he was a locomotive engineer for UP for almost 20 years, and the idea of a one-person train crew is unsafe because it would take away half of the decision-making team.[114] The commenter described how a two-person crew goes through their paperwork together, discussing slow orders, train makeup, and temporary restrictions. He said that organizing the crew's paperwork and planning the shift's operation will not always be easy because, with so many documents, rules, and temporary rules, one person could overlook a safety concern and make a mistake the other crewmember could have otherwise caught. The commenter also raised concern that, although a one-person train crew may be able to perform certain tests and inspections alone or with a utility employee, a conductor assigned to the train provides a valuable oversight role, and ''it's just more cohesive to have that second person [remain with the train] for the entire trip.'' [115] Further, the commenter stated that toward the end of a tour of duty, when a train approaches a crew change, the crew has many responsibilities that are time-sensitive and would be difficult for a one-person crewmember to complete as quickly or efficiently.

A commenter, who described herself as the spouse of a railroad worker and a person with significant interest in the rulemaking largely because of her many work experiences in first responder positions including as a 911 dispatcher and working in an ambulance, fire truck, and police car stated that she has spoken publicly on the topic of blocked crossings and her opposition to one-person train crews.[116] The commenter stated that she has collected anonymous statements from railroaders regarding their experiences, describing accidents and possible scenarios that could cause delays or additional safety concerns if railroads use one-person train crews, including concerns about the limitations of PTC when traveling at restricted speed and having to visually verify switches, and the limitations of global positioning system software to detect which track the train will be operating over and how a second crewmember

[110] FRA–2021–0032–0594.

[111] FRA–2021–0032–0226.

[112] FRA–2021–0032–12808.

[113] FRA–2021–0032–13184.

[114] FRA–2021–0032–13184.

[115] FRA–2021–0032–13184.

[116] FRA–2021–0032–12819.

could provide backup in detecting if the train was lined to switch to the wrong track. The commenter also echoed many other concerns raised by individual commenters.

An individual commented in strong support of a national, minimum two-person train crew requirement as a proactive safety precaution.[117] This individual stated that she is concerned about public and environmental exposure to hazardous materials from accidents and non-accidental spills and is especially concerned about a one-person crew freight train transporting waste flowback from the fracking process that may have both known and unknown hazards.

A commenter noted railroad rules that impose critical focus zones (CFZ) in his comment in support of the NPRM.[118] The commenter pointed to the CFZ rule of the Canadian National Railway Company (CN), which he stated was in effect even with PTC, thereby showing a need for a two-person train crew even in PTC territory. The commenter stated that removing CFZ operating requirements and a two-person crew would certainly degrade safety given how a CFZ rule with a two-person crew greatly improves visibility and safety during train movements.

3. Federal Congressional Commenters

One comment signed by 54 House members stated their strong support for FRA's NPRM to enforce a minimum of two crewmembers in most passenger and freight rail operations, as they viewed the rule as necessary to ensure the safety of communities.[119] This comment urged FRA to act expeditiously in finalizing the strongest rule possible, finding crew size a fundamental safety issue. These commenters noted that commercial airlines and boats have at least two crewmembers, and that technology such as PTC cannot replace the expertise and quick-thinking nature of human beings acting together as a team to operate trains and respond to unanticipated events. These 54 House members also supported a two-person train crew mandate out of concern that ''some freight railroads are operating trains that are extremely heavy and miles-long, which impact safe handling, increase wear and tear, and cause blocked crossings which in turn impede motorists' travel and encourage dangerous pedestrian behavior.'' These commenters also stated that ''railroads successfully sued in court to overturn . . . [S]tates' laws'' mandating minimum crew size requirements, and courts found that ''the [F]ederal government has jurisdiction over crew size requirements.'' This group of lawmakers also concluded that the public needs ''the safety benefits and uniform protection that [a rule] on minimum train crew size [safety] would provide.''

Two of these House members, Rep. Donald M. Payne, Jr. and Rep. Dina Titus, also co-signed a second comment that expressed strong support for the proposed rule, especially raising concerns with freight trains that they note have grown in both length and weight, which adds to the complexity of safe handling of those trains and contributes to greater maintenance needs.[120] This jointly filed comment also raised concerns about anticipated delays in resolving train problems when there is only one crewmember. These congressional members stated their concern that local first responders are negatively impacted by a one-person train crew because of delays in unblocking crossings. This comment echoed FRA's description in the NPRM of the safety benefits that two crewmembers can provide for both operating the train and responding to any unanticipated events, including those that PTC was not designed to prevent.

Another of these 54 House members, Sharice L. Davids, filed a second comment to emphasize her support for the proposed rule and her concern that having one person responsible for a massive train hauling hazardous materials jeopardizes the safety of crews and the public at large.[121] Rep. Davids also commented that a national two-person crew requirement is important to secure some of the nation's most critical supply chain routes at a time when there is increased pressure on the supply chain.

FRA received at least two individually filed comments from House members who represent New Jersey districts and expressed support for the proposed requirements in the NPRM. Rep. Jefferson Van Drew wrote that he supported FRA's proposed rule because of his understanding that ''[r]ail transportation is safer when workers have a co-worker available to watch their back and assist them with difficult or dangerous tasks.'' [122] Rep. Van Drew emphasized that the final rule should also include passenger rail operations, and he urged FRA to strengthen the requirements to ensure the safest environment for rail workers. Similarly, Rep. Christopher Smith commented that he is strongly supportive of all trains in New Jersey having at least two crewmembers to ensure public safety and proper operation of critical infrastructure.[123] Rep. Smith stated that research indicates a two-person train crew team would have a greater ability to notice and correct errors or problem-solve during an emergency than would a one-person train crew. He raised safety concerns with a one-person train crew operating a long train that is transporting hazardous material through densely populated areas and concluded that a two-person requirement would best protect the public, preserve confidence in rail transportation, and safeguard communities.

4. State and Local Governmental Commenters

Several State and local government officials and organizations commented in support of the NPRM. For example, the National League of Cities, a nonpartisan organization comprised of city, town, and village leaders that are focused on improving the quality of life for their constituents, commented that it believes the presence and training of railroad crew is a matter of safety.[124] This organization supported the NPRM and stated the hazard of reduced crews undermines the safe and efficient movement of trains and puts local first responders in unsafe situations during rail incidents and accidents.

Michigan State Representative John Cherry commented that having a second crewmember could be the difference between life and death for the crew and the community.[125] Representative Cherry's comment stated a second crewmember is needed to help with situational awareness, prevent fatigue, and relay critical information to emergency responders if one crewmember is incapacitated. Similar comments were made by other Michigan State Representatives including Alex Garza,[126] David LaGrand,[127] and Padma

[117] FRA–2021–0032–13111.

[118] FRA–2021–0032–12333. FRA notes that there are no Federal requirements that a railroad establish operating rules or practices for a CFZ but that some railroads voluntarily establish them in certain territories to reduce distractions, especially for the locomotive engineer. For example, a crewmember other than the locomotive engineer may be required to make all radio communications in the CFZ, and any crew communications are required to be limited to duties related to the train's immediate operation.

[119] FRA–2021–0032–12809 (duplicate comment filed at FRA–2021–0032–12971).

[120] FRA–2021–0032–11185.

[121] FRA–2021–0032–10917.

[122] FRA–2021–0032–10347.

[123] FRA–2021–0032–13188.

[124] FRA–2021–0032–10696.

[125] FRA–2021–0032–9545.

[126] FRA–2021–0032–11021.

[127] FRA–2021–0032–10993.

Kuppa,[128] and Michigan State Senators Rosemary Bayer [129] and Erika Geiss.[130]

Dinah Sykes, Kansas Senate Minority Leader, commented in strong support of the NPRM because it will establish a consistent, nationwide standard that will reduce safety risks.[131]

Patrick Diegnan, Jr., New Jersey State Senator and Transportation Chair, stated that he is concerned with the safety of both freight and passenger trains that operate with great frequency through densely populated areas.[132] Senator Diegnan also attributed New Jersey's positive safety record in recent years to trains operating with no fewer than two crewmembers.

Aimee Winder Newton and Arlyn Bradshaw, two members of the Salt Lake County Council in Salt Lake City, Utah, commented in support of the NPRM because advancements in technology, such as PTC, improve safety but are not a substitute for a train's on-board crewmembers.[133]

Sonoma-Marin Area Rail Transit District (Sonoma-Marin), a State of California publicly-owned, 95-mile railroad, commented that it currently operates both passenger and freight rail service with two-person train crews and hosts tourist railroads that operate with at least a two-person train crew.[134] Sonoma-Marin stated that it supports FRA's efforts to create the safest operating environment for communities, railroad personnel, and customers. Each of the railroad's freight train crewmembers is qualified as both a locomotive engineer and a conductor, and the same combination is used for passenger operations, although periodically the second crewmember is only qualified as a conductor. In passenger service, Sonoma-Marin uses a PTC-equipped diesel multiple-unit fleet with two- and three-car consists. Sonoma-Marin also stated that it currently uses a 24-hour dispatch center and that crewmembers can directly communicate with one another.

Transportation for America, an advocacy organization for local, regional, and State leaders, supported FRA's action to require at least two crewmembers on most trains but expressed concern that the NPRM did not go far enough. Transportation for America advocated for requiring passenger operations to have three or four crewmembers and requiring a two-person crew minimum for any of the proposed exceptions for passenger and freight operations that operate over highway-rail grade crossings.[135]

Citizens Acting for Rail Safety—Twin Cities (CARS–TC), a community-based organization that is a regional chapter of Citizens Acting for Rail Safety, commented that the size of train crews is a public safety matter and opined that high hazard freight trains require a four-person train crew.[136]

FRA's Response

The vast range of commenters supporting the NPRM, including Federal, State, and local representatives, and organizations that represent communities and employees, reflects the interest that the public has in FRA regulating the safety issues regarding train crew size. The comments supporting the NPRM largely corroborated FRA's background in the NPRM describing the issues and why additional safety requirements are necessary. In FRA's experience with regulating and inspecting the rail industry, and as described by research and reports of incidents in the NPRM, conductors and other crewmembers not assigned to operate the locomotive or train play an active role in maintaining the safe operation of the train and safeguarding their fellow employees and the public. The comments supporting the NPRM help provide context for the safety issues described in the NPRM concerning the significant role of a conductor or second crewmember; the need to have technology installed to stop a train when a one-person train crewmember becomes incapacitated; and the need to establish minimum communication and other requirements to mitigate hazards arising from both routine operations and unplanned incidents such as derailments, accidents, and mechanical breakdowns. The many anecdotal comments from individuals supplement the research and reports as important source information for the contributions of a two-person train crew team.[137]

In addition, FRA agrees with these commenters that this rule is needed because PTC is not a solution by itself. As of September 2023, PTC technology is governing rail operations on approximately 58,787 route miles, representing approximately 42% of the rail network in the United States. Although this is a significant achievement, it means that most railroad route miles in the United States are currently not governed by a PTC system. Even on PTC-governed main lines, railroads experience unplanned outages and planned outages of their PTC systems. For example, in March 2023, BNSF and the National Railroad Passenger Corporation (Amtrak) experienced unplanned outages of their PTC systems, and NS experienced an unplanned outage of its PTC system in August 2023, impacting operations of both the host railroad and its tenant railroads. Also, during 2023, several Class I railroads, commuter railroads, and Amtrak temporarily disabled their PTC systems to facilitate planned infrastructure upgrades or capital projects. Finally, although railroads experiencing planned or unplanned outages of their PTC systems comply with certain safety requirements,[138] the NPRM clarified that ''while PTC is a safety overlay to help prevent certain accidents, FRA's PTC regulations do not include the requirements to perform crewmember job functions, which are essential to prevent or mitigate other accidents.'' [139]

### *D. Tourist Railroad and Railroad Museum Industry Comment That Asserted the NPRM Would Have No Impact*

Heritage Rail Alliance, Inc., the primary trade organization for the tourist railroad and railroad museum industry, commented that the NPRM appears to impact minimally, if at all,

[128] FRA–2021–0032–9906.

[129] FRA–2021–0032–11005.

[130] FRA–2021–0032–10585.

[131] FRA–2021–0032–9816.

[132] FRA–2021–0032–10588.

[133] FRA–2021–0032–10287.

[134] FRA–2021–0032–11211. Sonoma Marin's trade name is SMART.

[135] FRA–2021–0032–11186.

[136] FRA–2021–0032–10731. Citizens Acting for Rail Safety describes itself as a regional, non-partisan, grassroots advocacy group that works with residents, legislators, and agency officials to improve rail safety to benefit the health, safety, and security of people, wildlife and the environment.

[137] Some labor organization commenters, such as TTD and SMART–TD, highlighted FRA's Confidential Close Call Reporting System (C3RS) as a program that might help to inform this rule but raised concerns about the low participation rate among railroads. C3RS is a voluntary program that provides employees of participating railroads the opportunity to report unsafe events and conditions confidentially. *See https://railroads.dot.gov/railroad-safety/divisions/safety-partnerships/c3rs/confidential-close-call-reporting-system-c3rs* (providing an overview, a list of participating railroads, a description of stakeholders, and answers to frequently asked questions including how railroads, labor organizations, and FRA use data collected through the program). While FRA agrees that C3RS could be informative, *e.g.,* because the program periodically issues confidential ''alert bulletins'' to stakeholders and issues non-confidential information through publicly available newsletters, FRA is unaware of any such alert or newsletter that identified an issue that directly relates to the safety of one-person train operations. Also, because FRA desires greater rates of participation in the program than the approximately 25–30 current or committed railroad participants, none of which include any Class I freight railroads, FRA is currently engaged in efforts to promote voluntary participation in C3RS through the RSAC process. *See https://rsac.fra.dot.gov/tasks,* RSAC Task 2022–03.

[138] *See, e.g.,* 49 CFR 236.1021(m), 236.1029(b).

[139] 87 FR 45581.

the operating practices of both non-general and general system tourist railroads.[140] The commenter's informal survey found that its member railroads are using two-person train crews and that FRA was correct to conclude that tourist railroads are unlikely to switch to one-person train crew operations.

FRA's Response

In the NPRM, FRA stated that the agency is unaware of any tourist train operation on the general railroad system of transportation that operates with a one-person train crew.[141] Heritage Rail Alliance, Inc.'s comment verified that the final rule will have minimal to no impact on non-general and general system tourist and museum train operations. FRA notes, however, this final rule provides an exception for tourist train operations that are not part of the general railroad system of transportation, which is contained in § 218.125.

*E. Comments Opposing the NPRM*

The NPRM included a background discussion of the state of current operations, including the existing Federal safety requirements and projected impact of the proposed crew size safety requirements on existing and future one-person train crew operations. The following summary describes comments received from entities and individuals including members of Congress, passenger train operators, short line and regional freight railroad commenters, and Class I freight railroad commenters. FRA did not identify any labor organizations, tourist railroads, or State or local governmental commenters that opposed the NPRM. In the summary of the comments from Class I freight railroads and similar rail industry commenters, FRA responded to several additional subjects that were addressed by these commenters. For instance, comments were received regarding alternative crewmember arrangements that the industry referred to as expeditors, ground-based crewmembers, or ground-based conductors. The Class I freight railroads and similar industry commenters also covered the subjects of train operations in other countries, new technology and automated operations, the transportation of hazardous materials, risk assessments and FRA's review standard, and remote control operations. FRA's responses reflect the agency's position on the comments and how FRA has responded in the final rule as compared to the NPRM.

1. Congressional Commenters

The two Congressional comments opposing the rule detailed their opposition and raised a variety of legal, policy, and safety concerns that overlapped with other comments. For example, U.S. Senator Roger F. Wicker, and Rep. Eric A. Crawford stated their concern that the proposed requirements would have a significant economic impact on a substantial number of small entities, a concern shared by short line and regional freight railroad commenters.[142] Senator Wicker commented that ''[t]he NPRM fail[ed] to acknowledge that changes to operations and infrastructure, may produce benefits, including safety benefits [and that u]nder the logic in the NPRM, the specter of risk is sufficient to prohibit preemptively any innovation.'' [143] Further, Senator Wicker commented that FRA has other ways to address safety concerns raised in the NPRM such as raising the random testing drug or alcohol testing rates, requiring inward facing cameras, or using other technological advances.

Rep. Crawford expressed his view that FRA failed to comply with the Administrative Procedure Act, because he sees the NPRM as lacking a rational basis, and the Regulatory Flexibility Act, because he views the NPRM as failing to determine whether the proposed rule would have a significant economic impact on a substantial number of small entities. Rep. Crawford commented that those legal concerns may be secondary to his perception that FRA may be lacking the authority to promulgate a rule based on case law limiting agency action under the ''major questions doctrine.'' Rep. Crawford commented that the NPRM failed to adequately identify a particular problem that needs to be addressed, in addition to taking an overly prescriptive approach that does not encourage innovation or growth or competition among regulated entities. Rep. Crawford explained that he did not find FRA's support for the rule persuasive and he suggested that FRA should have gotten more input from the industry before publishing the NPRM.

FRA's Response

In comment responses below, FRA addresses in detail specific issues raised by the Members of Congress, as many of these issues were also raised by certain industry commenters. Other issues raised are addressed in the RIA and below in Section IV.B, Regulatory Flexibility Act and Executive Order 13272. The legal authority discussion in the Executive Summary, above, describes FRA's authority to issue this rule. Regarding additional industry input, FRA points to the extensive history of engagement with industry on this matter, including the following: (1) FRA pursued a collaborative approach on this subject matter in 2013 and 2014, but was unable to obtain an industry recommendation; [144] (2) FRA extended the comment period to 146 days upon request, which is significantly longer than the 60-day period originally scheduled; and (3) FRA provided a public hearing, which was widely attended and at which all commenters who wished to testify were provided an opportunity to do so.

FRA disagrees with Senator Wicker's comment that the proposed rule failed to recognize the benefits of innovation, as his comment was directed to FRA's explanation for how the introduction of technology or operational changes may introduce new risks. As clarification, the NPRM explained that a risk assessment is useful as a formal process to identify, evaluate, and eliminate or reduce any hazards identified to within a range of acceptability.[145] The risk assessment process therefore provides the railroad with an objective way of qualitatively or quantitatively showing how the technology or operational change is a safety benefit.

2. Passenger Operations

The Utah Transit Authority (UTA), which operates the commuter rail service called ''FrontRunner,'' commented that FRA should consider a different, less stringent approach in the final rule for passenger legacy operations especially because UTA's FrontRunner service was established in 2008 and FRA last approved that operation's emergency preparedness plan on February 25, 2022.[146] UTA's comment reflected that it would prefer

[140] FRA–2021–0032–11017.

[141] A comment was received from the Strasburg Rail Road, which has both tourist and short line freight operations, but that comment is discussed under the heading ''Short Line and Regional Freight Railroads'' as the comment described one-person train operations concerning the railroad's freight operations or work trains, not its tourist operations.

[142] FRA–2021–0032–13052 and FRA–2021–0032–13018.

[143] FRA–2021–0032–13052 at 1.

[144] 81 FR 13918, 13935–39 (Mar. 15, 2016) (describing in an NPRM for a previous rulemaking on this same subject FRA's efforts to obtain a consensus recommendation from the Railroad Safety Advisory Committee, a forum for collaborative rulemaking and program development that included representatives from all the agency's major stakeholder groups).

[145] 87 FR 45582.

[146] FRA–2021–0032–10984.

an option that did not require it to file for special approval, and that it was concerned about the added expense and complexity of complying with training a second crewmember should its current one-person train crew operation be disapproved. UTA suggested that FRA should consider expanding the current definition of ''train or yard crew'' in § 218.5 to include a second person like UTA's train host. UTA's comment also included alternatives that would expedite the review process for existing passenger operations or otherwise reduce costs.

The Denver Regional Transportation District (Denver RTD) filed a comment describing its passenger operation and requesting FRA consider the information in drafting a possible final rule.[147] For instance, Denver RTD requested that FRA consider whether an additional review process as proposed is necessary, stating FRA's prior approvals and requirements imposed on Denver RTD's operation were sufficient to address any safety concerns. Denver RTD also questioned whether FRA was correct to characterize the Denver RTD operation as a one-person train crew legacy passenger operation in the NPRM as Denver RTD believes its second qualified person already meets FRA's requirements for a train or yard crewmember.

The American Public Transportation Association (APTA) filed a comment that raised two issues of concern for its passenger rail operation members.[148] First, APTA raised concerns regarding the proposed risk assessment requirements, which are addressed below in this discussion of comments and conclusions under the risk assessment heading. Second, APTA included a comment similar to UTA's concern about the qualifications of a second train crewmember who could perform duties under an emergency preparedness plan.

The Commuter Rail Coalition (CRC) also commented with some concerns but did not assert whether the association or its members supported or opposed the proposed rule.[149] CRC commented that all major commuter railroads operating today provide at least two qualified individuals who are trained to support the safe operation of passenger trains, but that the ''proposed rule would likely have a direct impact on at least two commuter railroads that operate with at least two employees on each train but would likely still require a special approval.'' [150] Like the other passenger operation commenters, CRC requested that FRA consider amending the definition of train crew or adding an exemption so that the rule accommodates as two-crewmember operations those passenger operations that use a second person who does not perform functions connected with the movement of the train. CRC's comment was also similar to APTA's in its approach to the risk assessment, and which FRA addresses below in this discussion of comments and conclusions under the risk assessment heading. Further, CRC requested that FRA consider providing railroads with additional time to comply with any new requirements, suggesting that operations may need up to a year to implement changes.

FRA's Response

In the NPRM, the background section discussed FRA's awareness of at least two passenger train operations in which the railroads do not use train crewmembers that meet the definition of ''train or yard crew'' in § 218.5, notably because the second person does not perform functions connected with the movement of the train and thus is not performing service subject to the Federal hours of service requirements during a tour of duty.[151] FRA stated that although such passenger train operations may satisfy the requirements of 49 CFR part 239,[152] railroads would need to seek FRA's special approval under proposed § 218.131 to continue such legacy train operation staffing arrangements.[153] As described above, FRA received comments from both of the passenger train operations identified, Denver RTD and UTA's FrontRunner. FRA agrees with those passenger train operators that such legacy one-person train operations have been determined to meet the safety requirements of FRA's passenger train emergency preparedness rule and reopening those inquiries could be unduly disruptive to those operations. Simply put, because the passenger train emergency preparedness requirements overlap with many of the same issues that are addressed by a special approval petition in this final rule, FRA does not find it necessary to require a risk assessment and the opportunity for public input in the approval process for these legacy passenger train operations that already have approved emergency preparedness plans. However, FRA is not willing to forgo the benefits of such requirements for the initiation of passenger railroad train operations staffed with a one-person train crew as required under § 218.131. Accordingly, the final rule, in § 218.125(e), provides an exception for each passenger one-person train operation established before the effective date of this final rule with an approved passenger train emergency preparedness plan under part 239. Further, his final rule does not require these legacy operations to provide FRA with written notification of the operation, as it has with legacy freight train operations staffed with a one-person train crew in § 218.129 of this final rule, because the existing filing requirement for emergency preparedness plan approval under part 239 of this chapter already provides FRA with sufficient notice. As always, FRA also invites these legacy operations to approach FRA with any specific questions concerning their responsibilities under either part 239 or this final rule.

However, FRA disagrees with the comments suggesting that FRA expand the current definition of ''train or yard crew'' in § 218.5 to include a second person like those used in the legacy one-person passenger train operations. In those passenger legacy operations, the second person is not typically doing work under the hours of service laws and is not involved with the train's movements. Thus, for purposes of safe rail operations, FRA does not consider that type of rail employee to be a member of the train crew and will not carve out what would result in a prospective exception to the two-crewmember requirement for existing passenger train operations in this final rule.

3. Short Line and Regional Freight Railroads

The American Short Line and Regional Railroad Association (ASLRRA), on behalf of its short line and regional railroad members, provided testimony at the public hearing and submitted a 143-page comment.[154] ASLRRA commented that it represents approximately 600 Class II and III railroads, which operate 47,500

[147] FRA–2021–0032–12177.

[148] FRA–2021–0032–12947.

[149] FRA–2021–0032–12172.

[150] *Id.* at 3.

[151] 87 FR at 45580, n. 162 (identifying the following known passenger train services operating with a one-person train crew: (1) Denver RTD/Denver Transit Operators; and (2) UTA's FrontRunner).

[152] 49 CFR 239.7 (defining ''crewmember,'' in part, to include ''a person, other than a passenger, who is assigned to perform . . . [o]n-board functions in a sleeping car or coach assigned to intercity service, other than food, beverage, or security service'', and 49 CFR 239.101(a)(2), addressing employee training and qualification of all ''on-board personnel,'' whether in intercity or commuter passenger train service).

[153] 87 FR at 45580.

[154] FRA–2021–0032–13033.

miles of track or approximately 29 percent of the national freight network, and employ approximately 18,000 people. ASLRRA raised a wide range of issues including legal, policy, economic, and factual concerns in opposition to the NPRM.

Like the comment filed by the U.S. Small Business Administration's Office of Advocacy [155] (SBA-Advocacy), described further in the Final Regulatory Flexibility Analysis below, ASLRRA contends that the NPRM underestimated the number of small railroads that would be impacted, omitted costs for small railroads to comply, and miscalculated the costs on small railroads to comply with the special approval process. To support this position, ASLRRA surveyed its members and provided a statistical extrapolation based on the results of the survey.[156] ASLRRA commented that the number of its member railroads that currently operate with some type of one-person train crew is approximately 420 railroads, a much greater number than the seven such short lines FRA identified. ASLRRA was also concerned that the NPRM treated small entities in the same way as Class I railroads when transporting certain types of hazardous materials because the small railroad exception would not apply under those circumstances.[157] ASLRRA commented that the NPRM ''also declines to provide regulatory relief or consider less burdensome alternatives for small businesses'' [158] that would benefit from ''a performance standard.'' ASLRRA also requested that FRA consider providing small railroads with more time to comply to allow for proper planning, operational changes, and hiring and training of additional crewmembers, if necessary. ASLRRA opposed the proposed prohibition on transporting certain types or quantities of hazardous materials with a one-person train crew. ASLRRA estimated that approximately 114 short lines currently operate a train with a one-person crew carrying quantities or types of hazardous materials that would require a minimum two-person crew under the proposal, including five railroads that had representatives testify at the public hearing.[159] ASLRRA commented that railroads, by statute, are under a common carrier obligation to provide transportation of goods on reasonable request and may not refuse to provide service merely because it would be inconvenient or unprofitable.[160] ASLRRA's comment suggested that FRA previously determined that an alerter was unnecessary for rail safety at speeds of 25 mph or less when the agency promulgated a final rule on locomotive safety standards in 2012 without distinguishing the risk between a two-person train crew and a one-person crew.[161] Further, ASLRRA commented that it costs approximately $20,000 to equip a locomotive with an alerter, approximately 83 railroads currently operate with one person in the locomotive cab using locomotives that are not equipped with an alerter, that it may not be possible to retrofit some older models of locomotives, and to meet the proposed requirements, these 83 railroads would need to equip at least half of their locomotives.[162]

Approximately 14 railroads or rail customers used a form letter in which they identified their company as a member of the ASLRRA and asked to incorporate the ASLRRA's comments as their comment. For example, the form letter was used by the Virginia Railroad Association that represents nine short line railroads, two Class I railroads, and 27 other rail-related business members.[163] Also, these form letters offer the same types of legal, economic, and policy comments that ASLRRA made in greater detail in its comment.[164] Each form letter was personalized by adding one or two unique paragraphs describing the submitter's existing one-person train crew operations, or plans to introduce a one-person train crew operation, or to otherwise explain why the commenter company opposed the NPRM. Ironhorse Resources, Inc., the parent company of at least eight railroads, commented that the NPRM would significantly impact their existing operations because they use an engineer on the locomotive and a conductor located in a vehicle.[165] Similarly, the Central Indiana & Western Railroad commented that it is a small, family-owned railroad with two full-time employees and two part-time employees and is concerned that the requirements, as proposed in the NPRM, would remove the railroad's option to utilize an engineer on the locomotive and a second crewmember in a utility vehicle.[166] The Sandersville Railroad also commented that the requirements, as proposed in the NPRM, would remove the railroad's option to utilize an engineer on the locomotive and a second crewmember in a utility vehicle. Further, this railroad explained that the small railroad operation exception, as proposed, would not be manageable for its operation, although in coming to that conclusion it misconstrued the proposed exception as only applying to railroads that employ train dispatchers.[167] The Ashtabula, Carson & Jefferson Railroad did not comment why it could not meet the small railroad operation exception as proposed but commented that it uses a one-person crew on its six-mile-long track with transloading operations at each end, operating at 10 miles per hour (mph), and a second crewmember to flag two unprotected highway-rail grade crossings and help with switching.[168] MG Rail commented that it is a short line switching railroad that uses remotely controlled locomotives (RCL) in its operations with a one-person crew and is concerned about the rule's potential impact on short lines generally but did not specifically explain how the NPRM might potentially impact its operations (as the NPRM did not propose requirements for trains during switching service and included a proposed one-person train crew exception for remote control operations).[169]

The Cimarron Valley Railroad (CVR) commented that it is a Class III short line that operates with both two-person and one-person crews and is concerned that the NPRM's small railroad exceptions would not apply to its one-person operation because the total length of its unit trains handled in interchange are greater than FRA's proposed limitation of 6,000 feet for the proposed small railroad operation exception.[170] CVR did not state how long these trains were nor explain why it could not file a special approval

[155] FRA–2021–0032–13007.

[156] FRA–2021–0032–13033, att. D (providing a summary and statistical analysis of the survey).

[157] FRA–2021–0032–13033 at 41.

[158] FRA–2021–0032–13033 at 10 and 13.

[159] FRA–2021–0032–13033.

[160] *Id.* citing 49 U.S.C. 11101(a) and offering the explanation that ''[w]hile the obligation applies only to regulated traffic (*e.g.,* coal, grain, chemicals, etc.), the Surface Transportation Board has historically stepped in to ensure that shippers are reasonably served even for exempt commodities.''

[161] FRA–2021–0032–1193 at 29–30 (citing 77 FR 21312).

[162] FRA–2021–0032–1193 at 30–31.

[163] FRA–2021–0032–12381.

[164] FRA–2021–0032–13033.

[165] FRA–2021–0032–11719 (Caney Fork & Western Railroad); FRA–2021–0032–11720 and duplicated in FRA–2021–0032–11722 (Sequatchie Valley Switching Company); FRA–2021–0032–11721 (Walking Horse Railroad); FRA–2021–0032–11723 (Rio Valley Switching Company; Gardendale Railroad; Santa Teresa Southern Railroad; San Pedro Valley Railroad; Southern Switching Company).

[166] FRA–2021–0032–12301.

[167] FRA–2021–0032–12394.

[168] FRA–2021–0032–12970.

[169] FRA–2021–0032–12261. The Finger Lakes Railroad (FGLK) filed a similar comment in that it is a Class III short line that has uses one-person remote control operations.

[170] FRA–2021–0032–12683.

petition for a legacy operation as proposed. Like other short line commenters, CVR did not request that FRA amend the exceptions or special approval process in the NPRM but instead requested that FRA withdraw the NPRM in its entirety or, alternatively, categorically exclude all Class II and III operations because, in its view, short lines already successfully operate today in this environment.

The Farmrail System, which owns two Class III short lines, Farmrail Corporation and Grainbelt Corporation, commented that it has used one-person crews by utilizing a truck-based employee to accompany freight trains between switching assignments and with remote control operations.[171] This commenter found the NPRM's proposed requirements complicated and did not believe the exemptions and special approval process provided adequate relief for short lines.

Patriot Rail commented that it is a holding company that owns 31 short lines with operations that use one crewmember in the locomotive and one crewmember in a motor vehicle providing safety, logistical, and customer support.[172] Overall, Patriot Rail opposes the rule for many of the same reasons articulated in ASLRRA's comment. Patriot Rail stated that it supports FRA's recognition that short line operations can be accomplished safely with a minimum of two crewmembers, but with only one person in the locomotive cab. Patriot Rail commented that some of the NPRM's requirements allowing for exceptions seemed arbitrary, such as limitations on train length and commodities, and for other proposed requirements for alerters, dispatching, and electronic communications devices. Additionally, Patriot Rail recognized the proposed special approval process as an option if an exception to the NPRM could not be met, but this short line holding company viewed the process as burdensome without clearly enumerated safety benefits.

The Strasburg Rail Road commented that it has tourist and short line freight operations that frequently permit its two crewmembers to leave the locomotive cab after securing the train, such as when a one-person crewmember joins a roadway work group on the ground after securing the train.[173] This railroad commented that it was concerned that the rule would prohibit that activity because FRA proposed that the one-person train crewmember must remain in the locomotive cab during normal operations. The Strasburg Rail Road also commented that it does not have locomotives equipped with alerters for its one-person work train operations.

Other such railroad commenters provided testimony at FRA's public hearing. For example, the Director of Safety, Training, and Regulatory Compliance for the Rio Grande Pacific Corporation (RGPC) testified that its four Class III short lines operate with an engineer in the locomotive and a certified conductor in a utility vehicle who maintains contact with the engineer by radio and is assigned as a train crewmember.[174] RGPC explained that this crew staffing arrangement is efficient for interaction with customers, preparing for the train's arrival at a customer's location, and protecting highway-rail grade crossings. RGPC is concerned that certain of the NPRM's proposed requirements would mean that RGPC's short lines would need to hire a third crewmember because their operations would be unable to qualify for the small railroad exception. For example, RGPC testified that its short lines operate trains longer than 6,000 feet, haul 20 or more loaded cars of hazardous materials, and do not have the means to conduct real-time monitoring of the train's location. RGPC also testified how it would be logistically difficult to move the certified conductor in the utility vehicle to the locomotive, and that it believed the proposed rule would lead RGPC's short lines to hire a third crewmember.

The Vice President of Human Resources and Safety at Florida East Coast Railway (FEC) testified that the railroad is currently using one-person operations for short distance intermodal trains, but the NPRM would prohibit some trains because of the proposed hazardous materials prohibition.[175] FEC stated that it has an extensive list of deployed safety technology, and it has main track equipped for up to 60-mph trains.

The General Manager of the Madison Railroad and incoming Vice Chair for the Railroads of Indiana group testified that the Madison Railroad is a short line with five full-time staff and has been operating a one-person train crew since 1978 on its 41 miles of track at 10 mph in southern Indiana. Five employees are responsible for train operations and track and signal inspection and maintenance on the Madison Railroad.[176] The testimony added to the Madison Railroad's written comment, which used the ASLRRA's form letter.[177] The Madison Railroad testified that it operates about a mile and a half on steep 5.89 percent grade near the Ohio River, which is mitigated by specific operating rules, brake system and locomotive equipment requirements, and additional training. According to the Madison Railroad, it has provided additional risk mitigation steps above FRA's minimum requirements. For instance, the Madison Railroad testified that it only operates one train at a time and the maximum train speed is limited to 10 mph with restricted speed in effect. The Madison Railroad is concerned that the NPRM would lead to an overall net decrease in safety as any increased costs to hire a minimum of two additional employees would mean that the railroad would need to divert resources from investing in physical infrastructure and equipment.

The Senior Vice President and General Manager of the Grafton and Upton Railroad (G&U) testified as to his diverse experiences in railroad operations as a conductor, a locomotive engineer, and a designated supervisor of locomotive engineers, and how he has operating experience on Amtrak's Northeast Corridor, CSX Transportation's mainline, and many short lines.[178] Based on this experience, G&U testified that one-person crews have, both currently and historically, operated safely, and how doing so is a more efficient use of a short line's limited resources. G&U stated it has a 25-mile-long system and transports many hazardous materials, including propane, typically with a one-person crew that is certified as both a conductor and a locomotive engineer and a second conductor crewmember in a motor vehicle. G&U testified that, in addition to the proposed prohibition on trains with hazardous materials, it would not meet the short line exception in the NPRM because it operates over heavy grade. G&U also noted its locomotives are not currently required to have alerters. Overall, G&U expressed concern that the NPRM would create significant capital and operational costs.

The Vice President of Operations at Transtar, LLC, testified that Transtar is a holding company operating five Class

[171] FRA–2021–0032–13042.

[172] FRA–2021–0032–13019.

[173] FRA–2021–0032–12550 (and a duplicate was filed at FRA–2021–0032–12670).

[174] FRA–2021–0032–13184 (hearing transcript).

[175] FRA–2021–0032–13184 (hearing transcript).

[176] FRA–2021–0032–13184 (hearing transcript). The Railroads of Indiana filed a separate comment opposing the NPRM's lack of regulatory certainty about the likelihood of a special approval petition being approved and raising concerns about costs on small railroads. FRA–2021–0032–10228.

[177] FRA–2021–0032–12221.

[178] FRA–2021–0032–13184 (hearing transcript).

III short lines and one contract switching carrier.[179] Transtar highlighted one of its short lines, the Texas and Northern Railway (T&N), which it described as seven miles of main track serving small customers with a one-person train crew and a conductor in a motor vehicle. Transtar testified that the T&N would not qualify for the NPRM's exceptions because it does not maintain the train's real-time progress or have a method of determining the proximate location if communication is lost with a one-person crew. Also, the T&N does not utilize a dispatcher, its locomotives are not equipped with alerters, and its track has heavy grade. Transtar also expressed concern that the proposed rule would force T&N, which it described as a ''low margin railroad,'' to increase costs and the railroad's ''customers would in turn either pass the increased costs onto their customers . . . or choose to ship [their] commodities via truck which is considerably less safe, and less environmentally friendly than shipping via rail.''

FRA's Response

In this final rule, FRA has carefully considered the track record of safety in these operations with the need to establish minimum requirements to address fundamental issues of rail safety regarding the operation of one-person train crews and the short line rail industry's claim that the proposed requirements in the NPRM would have introduced significant costs on approximately 63 percent of the industry through proposed requirements for special approvals, risk assessments, the installation of alerters, or the adoption of and compliance with new operating rules.[180] After reviewing these comments, including the testimony at the public hearing that included approximately five Class II and III freight railroad representatives and the ASLRRA's expert on how their survey was conducted,[181] FRA made the following general determinations: (1) although ASLRRA made a good faith effort to collect data from its short line and regional railroad members, the information submitted is insufficient to allow an independent validation of the survey results and differences between ASLRRA's and FRA's estimates may have resulted from a misunderstanding of the proposed rule's terminology; (2) in turn, while ASLRRA extrapolated data in good faith from the data collected from the responding short line and regional railroads, because of the potential terminology misunderstanding and the potential for bias in the way ASLRRA surveyed its member railroads, FRA cannot rely on ASLRRA's data extrapolations for purposes of the RIA's primary analysis; (3) FRA can address the short line and regional railroad industry's requests to treat Class II and III freight railroads differently from the Class I freight railroads, a departure from the NPRM, by eliminating the special approval process for some one-person train crew operations when certain safety requirements and notification requirements are met, and thereby provide greater regulatory certainty; (4) FRA can address the short line and regional railroad industry's concerns regarding the proposed prohibition on one-person operations carrying certain quantities or types of hazardous materials; (5) FRA can address the short line and regional railroad industry's requests to provide railroads with more time to comply with any new minimum requirements to allow for proper planning, operational changes, or hiring and training of additional crewmembers, another revision to the NPRM; and (6) despite FRA's concerns as to the accuracy of ASLRRA's survey results and data extrapolations, the RIA does show that, even when using ASLRRA's numbers, the cost of the final rule will not be substantially higher because of changes made in the final rule from the NPRM and, therefore, FRA would still proceed with this rule whether or not ASLRRA's survey and extrapolation numbers were validated. FRA agrees with ASLRRA's comment that it may not be possible to retrofit some older models of locomotives, although ASLRRA did not describe this concern as an issue preventing existing operations from continuing but instead commented that approximately half the locomotive fleet for those existing operations would need to be retrofitted with an alerter. Consequently, the final rule addresses safety concerns with various one-person train crew operations that were raised in the NPRM, while providing flexibility for certain one-person crew operations by short lines. The following paragraphs describe FRA's response in more detail.

ASLRRA's survey suggested that because 176 short lines responded that they deployed a one-person train crew operation, ASLRRA could use statistical analysis to extrapolate and find that approximately 420 short lines industry-wide were deploying such an operation. However, as noted above, FRA did not use ASLRRA's extrapolated numbers in its primary RIA estimate because of the potential misunderstanding of the proposed rule's terminology and the survey's analysis did not adequately address the potential for non-response bias.[182] Specifically, although it cannot be determined from the survey data submitted, it seems plausible that short lines that perceived themselves as not having any type of one-person train crew operation or need for an exception, or otherwise not impacted by the proposed requirements in the NPRM, might have chosen not to respond to ASLRRA's survey.[183] Thus, while FRA's

[179] FRA–2021–0032–13184 (hearing transcript).

[180] ASLRRA's comment estimated that 63% of the short line railroad population 'run some kind of 1-person operation.' FRA–2021–0032–13033.

[181] FRA–2021–0032–13184 (hearing transcript).

[182] The ASLRRA's survey was not based on a random sample of short line railroads and did not examine why approximately 60 percent of ASLRRA's short line members did not respond. The survey used three statistical concepts to address the missing data problem; however, each analysis was problematic:

(1) ASLRRA's Missing Completely at Random (MCAR) analysis asserted that a representative random sample (of the population) was available from the survey response. However, the entire population was surveyed and for unknown reasons some railroads did not respond. This would preclude MCAR analysis for the purpose of extrapolation.

(2) A proper Missing (Conditionally) at Random (MAR) analysis requires that the railroads selected for the survey be grouped by known factors, such as commodity, and that it can be shown that a specific commodity grouping would have no reason to respond to the survey. ASLRRA's MAR analysis claimed that several variables could be used to achieve this grouping such as revenue, geography, and miles, but the means to identify the relationship of these groupings and survey response were not provided or cited. For example, the geographic regions selected were defined as four abstract areas lacking specific boundaries. In the analysis, miles were described as a factor and it was unclear if ''train miles'' (publicly available data on FRA's Safety Data website) were used as ''route miles,'' conflating how the factor could be applied. Proprietary revenue data was used in the analysis which prevented FRA from being able to independently validate the relationship between operations and revenue. Under 49 CFR 209.11, ASLRRA could have established a means to provide FRA the data for analysis, but it did not do so.

(3) A Missing Not at Random (MNAR) analysis is the most complex analysis of the three and asserts that the reasoning for the missing data is unknown and thus more data is required to analyze. In an MNAR analysis, groupings may show a definitive relationship with response versus non-response; however, in this survey, there is no definitive evidence showing the reason for the non-response. To use an MNAR analysis, ASLRRA should have required more data showing a definitive relationship with non-response (*e.g.,* by conducting a follow-up survey specifically targeted to the non-responding railroads).

[183] This possible explanation is most relevant to the discussion regarding MNAR analysis in the previous footnote, and this explanation is also plausible based on FRA's understanding of rail operations nationwide. Also, ASLRRA's survey expert testified at the public hearing that the association conducted its survey before the expert was brought onboard and how the problem is ''you worry that the non-responders are in some way different systematically from the responders [and that m]aybe it's just a case that . . . those short lines that are affected are most likely to respond.'' FRA–2021–0032–13184 at 36.

primary analysis in the RIA uses FRA's estimates, FRA added a sensitivity analysis in the RIA to demonstrate the cost of the final rule using ASLRRA's survey numbers. The costs based on ASLRRA's numbers would not dissuade FRA from finalizing this crew size safety requirements rule.

Because the estimate of the potentially impacted entities resulting from ASLRRA's survey and comment so greatly differed from FRA's estimate of potentially impacted railroads, FRA sought to understand the reason for this discrepancy, rather than to minimize ASLRRA's survey results, even though those results could not be independently validated. For example, in response to ASLRRA's survey of its 696 short line members, 176 of the 280 short lines that responded reported that they deployed a one-person train crew operation—which stands in sharp contrast to the seven freight railroads FRA identified by name in the NPRM as known to operate a one-person train crew operation.[184] Meanwhile, comments filed in response to the NPRM by holding companies owning multiple short lines and individual short line commenters revealed that, of approximately 62 short lines that self-identified as having a one-person train crew operation: (1) 54 short lines stated that they used a second train crewmember in a motor vehicle that intermittently assists the train—which FRA identified as a small railroad operation exception in proposed § 218.129(c)(1)(ii); (2) two short lines stated that their one-person train crew operation was a remote control operation—which FRA identified as a small railroad operation exception in proposed § 218.129(c)(3); (3) one short line identified that it used a work train with a one-person train crew—which FRA identified as a specific freight train exception in proposed § 218.129(c)(2); and (4) five short lines did not identify the type of one-person train crew operations they used or exactly how they would be impacted by the NPRM's proposed requirements. In reviewing the short line and regional railroads' comments, it appears that these commenters were counting all one-person train crew operations, even if the special approval process did not apply, because some of the one-person train crew operations FRA proposed for exception could not be used without also complying with additional requirements. Thus, FRA determined that the NPRM's lack of a definition for a ''one-person train crew'' was creating confusion.

To ensure that FRA and the rail industry use the same terminology for the purposes of addressing one-person train crew requirements, the final rule includes definitions for the terms ''one-person train crew'' and ''one-person train crewmember.'' By defining these terms, the final rule clarifies that a one-person train crew includes: (1) a train operation with a single assigned railroad employee performing both the locomotive engineer's and conductor's duties; or (2) when a single assigned railroad employee is traveling on the train when the train is moving, and the remainder of the train crew, including the conductor if the locomotive engineer is not the assigned conductor, is assigned to intermittently assist the train's movements. The latter operation will therefore include what many short line commenters described as a one-person operation when they used a second assigned train crewmember that intermittently assists the train but primarily travels in a motor vehicle instead of traveling on the train when the train is moving.[185]

In the NPRM, FRA described the agency's understanding that fewer freight short line and regional railroads are using one-person train crew staffing arrangements than in 2016, as FRA identified fourteen Class II and III railroads operating single-person train operations in 2016 and only seven of those same freight railroads maintaining such operations in 2022.[186] FRA requested comments on any additional such railroads conducting one-person train crew operations and the interest of such railroads to conduct one-person train crew operations in the future.[187]

Based on the comments and the added definitions concerning one-person train crews, FRA has revised its estimate of the number of existing railroad operations impacted by each requirement in the RIA to this final rule. FRA estimates that there are 75 Class II and III railroad legacy freight one-person train crew operations, excluding those one-person train crew operations that would fall into one of the other exceptions covered in the final rule by § 218.125 through § 218.129. This estimate was based on the 62 commenters that described an existing one-person operation, even counting the eight commenters that did not describe an operation that definitively would fit into the one-person train crew operation as FRA is defining such an operation for this final rule. Further, this estimate includes the seven one-person train crew operations identified in the NPRM and the proposed rule's RIA. FRA's estimate includes at least 10–20 percent more one-person train crew operations than known through FRA identification and commenters' self-descriptions. Although some commenters were ambiguous in describing their operations, FRA included those operations in this conservative estimate that may overestimate the actual number of established one-person train crew operations.[188]

This final rule also addresses the short line rail industry's request that the final rule distinguish Class II and III freight railroad operations from those of the Class I freight railroads by utilizing the alternative regulatory approaches discussed in the NPRM's RIA.[189] Thus, rather than requiring a special approval petition for each proposed one-person train crew operation, the final rule allows certain one-person train crew operations to continue or be initiated without a special approval process. Instead of the proposed FRA review and approval requirements associated with a special approval petition for all legacy train operations staffed with a one-person train crew in proposed § 218.131 and for the initiation of all other train operations staffed with a one-person train crew in proposed § 218.133, the final rule, in § 218.129, requires written notification (in addition to certain operational requirements) only from railroads with established legacy one-person train crew freight operations as well as Class II and III freight railroads seeking to initiate a train operation staffed with a one-person train crew but not transporting hazardous materials of the types or quantities specified in § 218.123(c). This written notice replaces the approval process for these operations and provides greater

[184] 87 FR 45578–79, FN 155.

[185] As is later explained in greater detail in this discussion of comments and conclusions, FRA's current rail safety requirements distinguish between a train crewmember that is assigned a single train and a person that performs work as a utility employee or other worker that may perform work for multiple trains. FRA found ASLRRA's survey questions drafted imprecisely with regard to this issue. For instance, in ASLRRA's survey, *see* FRA–2021–0032–13033, attachment A, question 4 asks a railroad to check a box if it uses on its main line operations ''one person in the locomotive cab, supported by a conductor who is supporting multiple trains simultaneously,'' when FRA requires a conductor to be in charge of the crew and therefore a conductor cannot be in charge of more than one train simultaneously. *See* 49 CFR 242.7 (defining ''conductor'').

[186] 87 FR 45578.

[187] 87 FR 45579.

[188] In response to ASLRRA's survey of its 696 short line members, 176 of the 280 short lines that responded claimed that they deployed a one-person train crew operation.

[189] FRA–2021–0032–0368.

regulatory certainty while providing more flexibility to short lines as compared to the NPRM's proposed requirement of a petition filing and special approval process. The notification requirements in the final rule will still provide FRA with significant information regarding the locations and extent of, and hazards posed by, these one-person train crew operations.

FRA's decision to permit Class II and III legacy one-person train crew freight operations, including those transporting hazardous materials, to continue without a risk assessment or special approval was based on the final rule's imposition of minimum requirements on these legacy operations. For instance, the implementation schedule phasing in operating rules to protect the one-person train crewmember and to safeguard the public after an incident should ensure that railroads are prepared to take the appropriate mitigation measures to protect employees and the public. Similarly, the final rule's requirement for an alerter on any controlling locomotive operated by a one-person train crew and an operating rule that requires testing the alerter to confirm it is functioning before departure will provide an alternative that makes that aspect of the operation as safe or safer than a two-person minimum train crew operation where a second crewmember would be expected to make an emergency brake application if the locomotive engineer became incapacitated. Although not required in this final rule, FRA encourages railroads with legacy operations to examine any safety hazards that could be further mitigated to reduce risks with one-person train crew operations or any of their operations generally, such as track maintenance near waterways and densely populated areas or the railroad's operating rule requirements for a second crewmember who assists intermittently to ensure that this crewmember is contributing to the safety of the train's movement to the greatest extent possible. FRA will closely monitor this legacy exception and will scrutinize data or observations showing that the legacy operations may not be as safe as currently described.

FRA also removed the NPRM's proposed prohibition on one-person train crew operations transporting certain types or quantities of hazardous materials with respect to initiating new or existing, but non-legacy, operations. All railroads, including Class II and III railroads, seeking to initiate such an operation transporting hazardous materials of the types or quantities specified in § 218.123(c) will be required to conduct a risk assessment and obtain special approval for the operation under § 218.131. The revisions from the proposed rule's approach regarding the transportation of hazardous materials reflects FRA's consideration of ASLRRA's comment that the common carrier legal obligation prohibits a railroad from refusing service to a customer that provides a properly packaged hazardous material. The RIA acknowledges the potential costs of compliance with the final rule's requirements for a one-person train crew. Considering the known safety and security risks associated with operating trains transporting large amounts of hazardous materials, previously determined by FRA, the Transportation Security Administration (TSA), and the Pipeline and Hazardous Materials Safety Administration (PHMSA) to present the greatest safety and security risks, FRA finds that the final rule's requirements are justified to ensure the safety of trains. FRA is willing to work with the short line industry in developing a model risk assessment that could potentially reduce the paperwork burden on short lines and accelerate the petition process. FRA also supports ASLRRA and its members creating a template or model risk assessment to reduce the burden on individual Class II and III railroads. FRA has considered this in estimates used in the final rule's RIA.

The final rule also addresses the short line industry's comments that the proposed exceptions in the NPRM were too stringent in that they included limitations on speed, grade, or train length, by largely eliminating those proposed limitations within the exceptions and providing other criteria to govern those operations. For instance, in proposed § 218.129(c)(1), the exceptions identified specifically for ''small railroad operations'' were limited to a freight train operated on a railroad that would not exceed 25 mph and by an employee of a railroad with fewer than 400,000 total employee work hours annually. In the final rule, FRA did not include the proposed speed restriction for such a small railroad operation, thereby allowing the train to be operated at the maximum allowable track speed and not creating a disincentive to maintaining track to the highest standard a railroad chooses to sustain. The small railroad operations exception was also expanded in the final rule to include all Class II and III freight railroads.[190] In addition, the proposed track grade and train length limitations for the small railroad operations exception have not been adopted in the final rule. Moreover, in response to short line comments and after reviewing existing safety regulations, FRA has decided not to apply this final rule to a train operation controlled by a remote control operator because it has existing safety requirements for these operations and because there are other reasons mentioned later in this discussion of comments and conclusions.

Similarly, the final rule responds to certain short line commenters' concerns over a proposed requirement that certain one-person freight train operation exceptions in proposed § 218.129(c) must have an operating rule or practice requiring that the crewmember remain in the locomotive cab during normal operations and leave the locomotive cab only in case of an emergency affecting railroad operations.[191] The proposed requirement applied to the exceptions identified as small railroad operations, work train operations, and remote control operations. The Strasburg Rail Road explained that this proposed requirement would have precluded its current work train arrangement whereby the one-person crewmember is permitted to join a work group on the ground after securing the movement. Upon further consideration, the requirement FRA proposed in the NPRM has not been included in the final rule, as FRA finds its current securement requirements are sufficient to safeguard unattended trains.[192]

Additionally, in § 218.129 of the final rule, FRA has addressed the comments requesting that each railroad be provided more time to comply with any new requirements or, as necessary, hire or train a second crewmember for a one-person train crew operation by providing an implementation schedule that phases in the final rule's requirements for certain specified one-person train crew operations. That phased-in implementation schedule will apply to: (1) each Class II or III railroad with a legacy one-person freight train operation; (2) each railroad seeking to continue or initiate use of a work train operation staffed with a one-person train crew; (3) each railroad seeking to continue or initiate use of a helper service train operation staffed with a

[190] There are nine holding companies that own approximately 250 Class II and Class III railroads. Those holding companies are: Anacostia Rail Holdings, Genessee and Wyoming, Iowa Pacific Holdings, OmniTRAX, Pioneer Railcorp, Progressive Rail Inc., R.J. Corman Railroad Group, Patriot Rail, and Watco.

[191] 87 FR 45617 (citing proposed paragraph (b)(1) of § 218.129).

[192] 49 CFR 232.103(n).

one-person train crew; and (4) each railroad seeking to continue or initiate use of a lite locomotive train operation staffed with a one-person train crew, excluding a multiple unit (MU) locomotive passenger operation where the car carrying the passengers is also functioning as the locomotive.

The implementation schedule provides enough time for railroads to comply with the final rule's new requirements, and FRA encourages each railroad with a one-person train crew operation to act more quickly than required by the schedule when possible. For instance, FRA expects that each railroad should be able to adopt any necessary operating rules within a short period of time, potentially within a few weeks at most, even though the final rule's implementation schedule for excepted operations will provide up to 90 days from the effective date of the final rule. It is possible that ASLRRA or other groups will draft model operating rules that address the operating rule requirements in the final rule, and these model operating rules could be adopted secondarily to replace any quickly adopted rules that are used in the short term. Meanwhile, it can be expected that some railroads will quickly install any required alerters while others delay installation for various reasons; FRA urges each railroad not to delay alerter installation.[193]

For these reasons, the final rule largely provides the clarity and streamlined approach that ASLRRA and Class II and III freight railroads requested while establishing minimum requirements for the safety of one-person train crew operations. At the same time, the final rule increases safety for operations proposed as one-person train crews because an alerter or a second crewmember to stop the train in an emergency is a necessary precaution to prevent the potential for catastrophic harm due to an uncontrolled train movement; in reaching this conclusion, FRA reviewed its statements from 2012 in a locomotive safety standards rulemaking cited by ASLRRA and determined that the agency is not issuing conflicting statements.[194] The final rule's requirements regarding alerters in the controlling locomotive, safeguards to protect the one-person train crewmember, and procedures for minimizing the impact of situations that could endanger employees, the public, or environment reduce the risk of foreseeable hazards associated with one-person train crew operations.

4. Class I Freight Railroads

FRA received numerous comments opposing the NPRM from the Class I freight railroads and groups associated with those railroads. The following is a summary of, and response to, those comments.

a. Alternative Crewmember Arrangements Including Expeditors, Ground-Based Crewmembers, or Ground-Based Conductors

Numerous commenters offered that the NPRM would be disruptive to their current operations or plans to use one-person train crews in combination with other rail employees that, as described, might not be a part of a train crew as FRA defines that term in its current regulation,[195] or would not meet FRA's proposed requirements under the NPRM. In general, these commenters described train operations using a rail worker, traveling in a motor vehicle, that intermittently assists the train at key intervals such as to flag a highway-rail grade crossing, throw a hand-operated switch, or be available in case of emergencies or to diagnose and repair a mechanical problem if the train becomes disabled.

During the public hearing, UP's Vice President of Crew Management Services and Interline Operations testified regarding the railroad's expeditor pilot program and future plans, which included showing a video demonstrating the job of an expeditor.[196] UP's written comment also described its expeditor plan and stated that FRA's NPRM would disrupt the implementation of that plan.[197] UP described its expeditor plan as using one-person train crews with PTC and ground-based conductors replacing train-based conductors. In a written statement, UP described how its PTC system includes a parking brake feature that can set the train brakes for routine work on the ground near the train and can set a full-service brake application if movement is detected—a feature that is not mandated by FRA. UP envisioned expeditors to run on a subdivision basis, not a train-by-train basis, and for expeditors to be used for all commodities including all types and quantities of hazardous materials. UP stated that it expects some subdivisions or territories will require more than a single expeditor to handle the train density. The rationale UP gave for initiating its expeditor plan was that a conductor's job primarily consists of preparing a train for departure and occasionally addressing minor mechanical issues that occur en route, and that an expeditor's role can be designed to accomplish traditional conductor tasks in less time. Phase one of UP's expeditor plan is for implementation on territory that has a double mainline track with a state highway running along side it, albeit with a traditional conductor also on the train. UP described three additional phases, each adding layers of new complexities. UP commented that it believes a person working in an expeditor role is safer than a train-based conductor because the employee will not have to climb out of the locomotive cab and walk long distances aside the train in potentially challenging environments to repair a mechanical problem. UP stated that if FRA insisted on excluding one-person crews from operating trains carrying hazardous materials, UP would end its expeditor pilot program because the program is dependent on treating all trains passing through a particular area in the same way.

During the public hearing, the Vice President of Advanced Train Control for NS testified regarding the railroad's plan

[193] Not only does FRA require most locomotives to have a working alerter installed, FRA's current rail safety regulation in the same part as this final rule contains a strict prohibition against tampering with such devices that are installed to improve the safety of the operation of train movements. 49 CFR part 218, subpart D.

[194] ASLRRA's comment, FRA–2021–0032–1193 at 29–30, citing 77 FR 21312, did not explain that: (1) FRA's statements regarding the need to establish a minimum alerter requirement were based on multiple NTSB recommendations to do so; (2) that NTSB's recommendations were based on accidents that occurred at varying speeds; or (3) that NTSB's accident analysis was focused on the ''crewmembers'' without considering the possibility that railroads would be operating one-person trains. 77 FR 21320–21. Similarly, FRA's rationale for permitting operational flexibility by tailoring the alerter standard to a minimum operational speed did not address the possibility that railroads would be operating one-person trains. 77 FR 21329–30. NTSB's rationale for an alerter standard included an analysis of a head-on train collision on July 10, 2005, in which ''the NTSB determined that an alerter likely would have detected the lack of activity by the engineer and sounded an alarm that could have alerted one or both crewmembers [and h]ad the crew been incapacitated or not responded to the alarm, the alerter would have automatically applied the brakes and brought the train to a stop . . . [potentially] prevent[ing] the collision.'' 77 FR 21320–21. In FRA's view, because the agency understood the operational status quo at that time was a minimum of two train crewmembers, its decision in 2012 to provide some operational flexibility to ''freight railroads [that] only operate over small territories'' and move at lower speeds included the unwritten expectation that a second crewmember would be available to apply the emergency brake if the locomotive engineer was fatigued or incapacitated. 77 FR 21329–30.

[195] 49 CFR 218.5 (defining train or yard crew).

[196] FRA–2021–0032–13184 (hearing transcript); *https://www.youtube.com/watch?v=6hr15dtWwGU* (video).

[197] FRA–2021–0032–13012.

to deploy ground-based conductors.[198] NS's written comment also described its plan and stated that the NPRM failed to consider how the rail industry can use operational innovations or deploy readily available technology to address any safety concerns associated with the operation of a train with fewer than two crewmembers.[199] NS also stated it met with DOT officials about its plan to deploy ground-based conductors.[200]

NS commented that PTC is installed on 58,000 miles of track in the United States, and it believes PTC has supplanted the role of a conductor. NS views PTC as handling all the tasks of a traditional conductor including: (1) advising the locomotive engineer regarding certain notifications and actions; (2) communicating with certain individuals outside the locomotive cab; and (3) completing certain forms and maintaining records. NS stated that new or revised mandatory directives are conveyed through the PTC system. NS also stated that the PTC system uses locational and mandatory directive data to prompt the engineer to obtain permission from the designated roadway worker in charge before reaching a work zone, and then the PTC system requires the engineer to acknowledge that the train has acquired the permission, presumably by radio communication, before allowing the train to proceed into the work zone. NS commented how a ground-based conductor or other technologies could perform the tasks that PTC systems do not completely perform. In a written statement, NS also commented that the railroad can plan to have a second crewmember on a train when it leaves PTC territory where appropriate or when the PTC system fails en route. Further, NS explained how the PTC system was designed utilizing human factor engineering principles to convey critical information clearly and consistently, thereby aggregating train and route information in a way that reduces cognitive workload while operating the train.

CN commented against the rule for the reasons described by the Association of American Railroads (AAR) but also requested that any final rule include revisions that permit ground-based crewmembers.[201] CN commented that the NPRM's proposed requirements would stifle different approaches to crew staffing and would permanently remove any possibility of ground-based assistance. CN commented that it would prefer an option like one FRA proposed in the 2016 NPRM that allowed for a railroad with PTC-enabled lines to notify FRA of the operation and permit FRA subsequent review to evaluate whether the railroad was providing appropriate safety.[202]

BNSF also commented against the rule for the reasons described by AAR and commented that the NPRM would unnecessarily impede BNSF's ongoing efforts, through collective bargaining, to implement one-person crew operations that also deploy ground-based conductors.[203] BNSF commented that it was focused on making work schedules more predictable for conductors.

FRA's Response

FRA does not agree with CN's concern that the NPRM would stifle different approaches to crew staffing or use of ground-based assistance, as the NPRM proposed a special approval process designed to consider the safety implications of alternative approaches. For instance, if CN or any other railroad seeks to initiate a one-person train crew operation that was not otherwise excepted, the use of one or more ground-based employees to assist the train could be considered a way to mitigate the risks in a risk assessment filed under the special approval petition process. CN and other railroads could, for example, look to one of AAR's exhibits evaluating some risks involved with one-person train crew operations under four basic sets of accident scenarios as a reference in creating a risk analysis.[204] The combination of ground-based employees, PTC, and other mitigating actions taken in conjunction with the special approval petition and risk assessment, where required under this final rule, could support a showing that a one-person train crew operation, with the risk mitigations in place, is as safe or safer than a two-person train crew operation. As explained below, FRA notes there are various terms being used by different railroads to describe their ground-based employees. Although use of different terms may present some confusion or concern, FRA recognizes that these types of employees may be important parts of a one-person train crew operation under the special approval petition requirements of this final rule.

The comments regarding alternative crewmember arrangements introduced various terms to describe rail employees such as expeditor, ground-based crewmember, and ground-based conductor, which FRA does not use in its regulations, but the concepts of which are incorporated within current terminology and requirements regulating railroad operating practices such as ''utility employee,'' [205] ''train or yard crew,'' [206] and ''worker.'' [207] FRA's current regulations specify requirements for the safe protection of temporary crewmember and non-crewmember railroad employees engaged in the inspection, testing, repair, and servicing of rolling equipment as is expected of utility employees and workers.[208] For instance, a ground-based employee, who is not part of the train crew, may need help from a conductor or second crewmember to communicate with the locomotive engineer so that mechanical repairs may be made safely, in accordance with current Federal rail safety requirements. Meanwhile, neither a utility employee nor worker, as defined in FRA's existing requirements,

[198] FRA–2021–0032–13184 (hearing transcript).

[199] FRA–2021–0032–13045.

[200] FRA–2021–0032–13181.

[201] FRA–2021–0032–13144.

[202] 81 FR 13918, 13966 (Mar. 15, 2016) (citing option 2, proposed § 218.135).

[203] FRA–2021–0032–12996.

[204] FRA–2021–0032–13056, AAR's Exhibit 6, a report prepared by Oliver Wyman titled ''Evaluation of Single Crew Risks'' (Jan. 26, 2015) (conducting a comparative risk analysis for select accident causes under present day mainline operations with traditional two-person crews versus future mainline operations on Class I railroad lines when an FRA-compliant PTC system is fully implemented). This report contained the disclaimer that ''it does not consider all causes of accidents and is not a full comparison of accident frequencies with and without PTC.'' Certainly, a risk assessment would go further than this report to consider incidents not preventable by a PTC system—such as those accidents that a PTC system is not designed to prevent when a train is operated at restricted speed.

[205] 49 CFR 218.5 (defining ''utility employee'' as a railroad employee assigned to and functioning as a temporary member of a train or yard crew whose primary function is to assist the train or yard crew in the assembly, disassembly or classification of rail cars, or operation of trains subject to the conditions set forth in 49 CFR 218.22).

[206] 49 CFR 218.5 *(defining ''train or yard crew''* as one or more railroad employees assigned a controlling locomotive, under the charge and control of one crew member; called to perform service covered by Section 2 of the Hours of Service Act; involved with the train or yard movement of railroad rolling equipment they are to work with as an operating crew; reporting and working together as a unit that remains in close contact if more than one employee; and subject to the railroad operating rules and program of operational tests and inspections required in §§ 217.9 and 217.11 of this chapter.

[207] 49 CFR 218.5 (defining ''worker'' as any railroad employee assigned to inspect, test, repair, or service railroad rolling equipment, or their components, including brake systems. Members of train and yard crews are excluded except when assigned such work on railroad rolling equipment that is not part of the train or yard movement they have been called to operate (or been assigned to as ''utility employees''). Utility employees assigned to and functioning as temporary members of a specific train or yard crew (subject to the conditions set forth in § 218.22 of this chapter), are excluded only when so assigned and functioning).

[208] 49 CFR part 218, subpart B—Blue Signal Protection of Workers.

would ride with the train, call out and verify signal indications, communicate by radio on behalf of the train crew, identify safety dangers along the right-of-way as the train progresses, remind the locomotive engineer of speed or other operating restrictions, provide guidance in an emergency or difficult operating environment based on experience, or monitor the locomotive engineer's alertness. Although a ground-based conductor that is part of the train crew or some technologies (or a combination of the two) might be able to assist with some of these functions, the descriptions of the Class I freight railroads' ground-based employee pilot programs indicate that the intent is to utilize rail personnel more efficiently by allowing the ground-based employee to service more than one train in a defined geographic area. Although the ground-based employee arrangement may be an efficient use of operations personnel, that arrangement alone does not offer an identical safety substitute for a traditional, second crewmember that travels on the train to each destination.

The use of terminology, not based in FRA' regulations, can obscure or minimize current safety requirements, and suggests that a railroad employee performing a non-crewmember role may be treated the same as a crewmember. A railroad is obligated to comply with FRA's current minimum safety requirements that protect these railroad employees from personal injury posed by any movement of such equipment regardless of the terminology used by the railroad. For instance, regardless of whether a railroad refers to a ground-based person assigned to assist more than one train as an expeditor, ground-based crewmember, or ground-based conductor, that person is not part of the train crew under FRA's definition of ''train or yard crew'' and must be provided with the Federally mandated safeguards when assisting a train.

Although UP has not yet initiated its expeditor plan, this Class I freight railroad made several comments justifying its plan to test the viability of one-person operations that are problematic, confirming a need for an FRA approval process. For instance, UP's rationale for initiating its expeditor plan oversimplified the conductor's roles and responsibilities. UP described a conductor's job as ''primarily consist[ing] of preparing a train for departure and occasionally addressing minor mechanical issues that occur en route.'' [209] UP's limited description of the conductor's job failed to address how a railroad would offset the significant safety backup and assistance role that conductors currently provide.

For instance, UP's description of the conductor's job neglected to address the railroad's operating rules and practices that hold a conductor accountable, along with the locomotive engineer, for the safe operation of the train and observance of the railroad's rules.[210] There are also numerous railroad rules that impose crewmember requirements such as the duty to communicate to each other the name of signals affecting their train as soon as the signals become visible or audible.[211] Similarly, there are numerous railroad rules that impose requirements on a conductor because the conductor is singled out for supervising the train operation, advising the engineer and train dispatcher of any restriction placed on equipment being handled, and reminding the engineer when the train is approaching certain area restrictions.[212] Similarly, UP and many other railroads have established ''cab red zone'' rules that require both crewmembers to minimize distractions during critical operating circumstances in an effort to enhance safety, but railroad commenters never raised alternative safety measures they would voluntarily adopt that offer a safety equivalent.[213]

Because conductors are accountable for safe train operations, a person holding a conductor certification can have that certification revoked.[214] Of course, the reason that UP and other railroads hold conductors accountable for safe train operations is that conductors are often completing safety tasks independently of a locomotive engineer, such as throwing hand-operated switches or directing shoving movements, or acting as an important backstop to the locomotive engineer when calling out signal indications, reviewing operating instructions, or obtaining track authorities or permissions. FRA is concerned that, without the type of Federal oversight required by this final rule, the commenting Class I railroads that have overstated the role of PTC or diminished the traditional role of a conductor will unreasonably rely on those same incorrect assumptions in making safety determinations when transitioning to a one-person train crew.[215]

It is also concerning that UP and other rail industry commenters largely asserted their safety case for ground-based employees by limiting their focus to circumstances when conductors are needed to fix mechanical problems and, in doing so, neglect the conductor's currently broad safety role. Although FRA shares the rail industry's concern that a train crewmember could get hurt in a slip, trip, or fall coming on or off on-track equipment or walking along the right-of-way, the industry's safety argument related to ground-based employees assisting the train seems largely limited to that one concern. UP also commented that expeditors ''will be less likely to suffer the effects of fatigue [because i]nstead of riding long miles on a train, the expeditor will be able to set out fresh from a home terminal every day'' [216] but did not address the issue of the locomotive engineer's fatigue by stating that UP would limit the one-person train crewmember to regular shifts as well. Many individual and labor organization comments stated how a second crewmember can help offset a locomotive engineer's fatigue, but UP and other Class I railroad commenters did not address this safety concern.

NS and other Class I freight railroad industry commenters stated that their plans to deploy ground-based employees and reduce crew size to one person would substantially rely on PTC systems. However, PTC systems were designed as overlay systems (*i.e.,* ''all of

[209] FRA–2021–0032–13012 (comment filed by UP).

[210] UP's General Code of Operating Rules (GCOR) describes the duties of crew members in rule 1.47 as generally ''responsible for the safety and protection of their train and observance of rules'' and includes a list and description of specific conductor responsibilities.

[211] UP's GCOR 1.47, C. All Crew Members' Responsibilities, 1. Crew Members in Control Compartment.

[212] UP's GCOR 1.47, A. Conductor Responsibilities.

[213] UP's GCOR 1.47.1: Cab Red Zone. For example, UP requires a cab red zone when operating at restricted speed and not switching, a situation where PTC, as designed, would not always stop a train as required by a restricted speed rule. In the cab red zone, UP requires that a crewmember handling radio communications must not be the locomotive engineer operating the controls.

Although a railroad may amend a railroad operating rule or practice without FRA's permission if the railroad's requirement is not a Federal requirement, each railroad adopts these self-imposed requirements to ensure that it implements safe operating practices and presumably would not intentionally introduce unsafe practices—which FRA could address through enforcement of existing requirements (such as those in 49 CFR part 217 regarding FRA review of a railroad's operating rules); by establishing new requirements; or by making recommendations in guidance.

[214] For instance, during the years 2021 and 2022, UP reported to FRA that it revoked certification for approximately 252 conductors for violations of operating rules and practices.

[215] Overall, FRA found AAR's Exhibit 1, a report prepared by Oliver Wyman titled ''Assessment of Conductor and Engineer In-Cab Work Activities'' (May 15, 2021), FRA–2021–0032–13056, informative, but FRA did not find it persuasive because of its failures by omission or making of assumptions that FRA did not agree with similar to those described in FRA's response to UP's comment.

[216] FRA–2021–0032–13184 at 79–80.

the safety features of the underlying operation to which PTC is added will be kept'') [217] to include the conductor. Indeed, FRA fully addressed this issue when requiring the onboard PTC apparatus to be arranged so each member of the crew assigned to perform duties in the locomotive can receive the same PTC information displayed in the same manner and execute any functions necessary to that crewmember's duties.[218] In the section-by-section analysis of a final rule on PTC systems, FRA stated that ''[f]or the conductor and engineer to fulfill the expectations of Congress, it is necessary for both crewmembers to have sufficient information to perform their duties,'' and FRA described how ''safety would be materially diminished if the conductor in freight operations were denied access to the same information in the same format as the engineer.'' [219] Also during that PTC rulemaking, FRA rejected AAR's comment that questioned the need for a conductor to have a PTC display and explained that ''PTC is currently an imperfect technology fed by databases that can be corrupted'' when the agency determined that the conductor or second crewmember must have the same PTC information displayed as the locomotive engineer.[220] For instance, during one of the PTC systems rulemakings, FRA responded to an AAR comment for a study showing that safety is jeopardized by assigning the engineer PTC-related duties by stating that ''FRA has directly observed engineers exceeding authorities while attempting to respond to PTC system requirements . . . and [how they were] plainly distracted from safety-critical duties.'' [221]

Thus, in response to this train crew size safety requirements rulemaking, AAR and other freight rail industry commenters are rehashing arguments FRA rejected in prior rulemakings, such as the argument that a locomotive engineer alone can acknowledge electronically transmitted mandatory directives by simply pressing a button when the train is in motion—an action that does not provide evidence of comprehension.[222] Removal of the conductor under these circumstances would mean that the Class I freight railroad industry commenters intend for the PTC systems to act as the sole backup for any operating mistakes committed by the locomotive engineer. Even when a PTC system works as intended, human error could occur if mandatory directive information is input incorrectly. In effect, a second crew member serves as a backup to validate the electronically transmitted mandatory directives are accurate.

As FRA noted in response to other comments, railroads continue to experience unplanned outages and planned outages of their PTC systems, in addition to various initialization failures, cut outs, and malfunctions. For example, in March 2023, BNSF and Amtrak experienced unplanned outages of their PTC systems, and NS experienced an unplanned outage of its PTC system in August 2023, impacting operations of both the host railroad and its tenant railroads. Also, during 2023, several Class I railroads, commuter railroads, and Amtrak temporarily disabled their PTC systems to facilitate planned infrastructure upgrades or capital projects. Even three years after the December 31, 2023, statutory deadline for full implementation of PTC systems, the railroad industry is continuing its efforts to improve the reliability and performance of PTC technology due, for example, to failures (including initialization failures, cut outs, and malfunctions, as defined in FRA's PTC regulations at 49 CFR 236.1003) and temporary planned and unplanned outages.

Moreover, the safety issues regarding the implementation of one-person train crew operations go beyond what the PTC system can do and include what additional duties will be shifted from a conductor to a one-person crew that have the potential to reduce the locomotive engineer's situational awareness. During the hearing, NS commented that it envisions the one-person crew will absorb the added duty of communications with other trains, such as communicating a defect observed on another train, while neglecting to address how the additional duty can be done safely, how realistic it is to expect a one-person crew to look for such defects while safely monitoring the progress of its own train, and whether any new hazards are created by the additional task that may need to be offset by some other action.

Although Class I freight railroad commenters pointed to the success of the Class II Indiana Rail Road Company (INRD) as their model for rolling out a one-person train operation, those railroad commenters did not explain or demonstrate to FRA that they took, or planned to take, any of the steps INRD took when it first implemented its one-person train crew operations nor did they explain how their operations are comparable to a regional railroad that largely serves local industries and provides connections between small railroads and major Class I railroads and that is operating on approximately 500 miles of track in two States.[223] For example, the Class I freight railroads' comments did not address whether: the communication requirements were reviewed and adapted for the one-person operation; or mitigation measures would be required to protect the one-person train crew, the public, or the environment, especially when a ground-based assistant would be unable to easily reach the train. Similarly, without a special approval process, a Class I freight railroad, with a more complex operation than a Class II or III freight railroad because it employs thousands of people in train operations and prioritizes long-haul transportation, would not be required to demonstrate that it considered all the hazards and mitigated the risks for a one-person train crew operation before initiating implementation, which FRA finds concerning given the ground-based employee plans described in comments do not include some hazards or show plans for mitigating risks that FRA identified in the NPRM. Thus, the INRD's Class II one-person train crew operation is not comparable to a potential Class I railroad operation unless a Class I railroad takes substantial steps to make them comparable.

b. Train Operations in Other Countries

AAR and other major freight rail industry commenters contend that FRA should not have a two-person train crew mandate because rail operations in other countries that use one-person crews provide sufficient data to support the

[217] 75 FR 2598, 2005 (Jan. 15, 2010).

[218] *See e.g.,* 49 CFR 236.1006(d). This requirement was moved from 49 CFR 236.1029(f), a section with requirements addressing PTC system use and en route failures, to its current location because it seemed a more intuitive location for a requirement related to equipping locomotives. 79 FR 49693, 49705 (Aug. 22, 2014).

[219] 75 FR 2668.

[220] 75 FR 2669–70.

[221] 75 FR 2670.

[222] 75 FR 2670–71. In rejecting AAR's argument under a PTC system final rule, FRA explained that the current practice of reading mandatory directives back to the dispatcher over the radio gives the crew an opportunity to read it and consider its relevance to the current situation.

[223] 87 FR 45568 (footnote 24 which listed the characteristics of INRD's one-person train operation that INRD claimed it voluntarily implemented to ensure the operation's safety). At FRA's public hearing for this rule, INRD stated that its implementation of a one-person train crew that started in 1997 ''required a lot of research, innovation and modern day technology.'' In addition, INRD clarified at the hearing that it used two types of one-person train crew operations, *i.e.,* terminal-to-terminal with a single-person crew and split crews with one person in a motor vehicle. FRA–2021–0032–13184 at 93.

safety of one-person train crew operations, and that data, when considered with the INRD's example, and the fact that ''passenger trains in the United States typically operate with one person in the cab,'' should be sufficient to support the safety of one-person train crew operations.[224] For instance, one of AAR's sponsored research documents compared the safety and characteristics of European and U.S. railways.[225] In summary, that 2021 study found that the operating complexity of the European rail network was based on high train density.[226] This AAR-sponsored study concluded that the defining factor in safety was not crew size; instead, lower accident rates were attributable to ''the kind of investments that mature economies make in infrastructure and technology—the same kind of investments that U.S. railroads have made and continue to make . . . each year.'' [227]

AAR also submitted a study it sponsored in 2015, which promoted train crew size reductions on trains operating on high-density lines from an economic view that would justify the expense and use of round-the-clock utility personnel.[228] This study described one-person train crew operations in North America, Europe, and in other countries in 2015 and the safety record of those international operations.

FRA's Response

FRA found the AAR-sponsored studies and major freight railroad comments on rail operations in other countries generally informative, but lacking persuasion that FRA should forgo regulating the subject matter of train crew size safety. In summary, FRA found one-person operations in other countries are either not comparable because of different operational factors that contrast with U.S. operations or because effective government regulation in other countries has established minimum safety standards in the same way this final rule will for U.S. operations.

For instance, in the NPRM, FRA addressed the subject of train operations in other countries by explaining that, for the most part, they are not comparable to U.S. train operations due to differences in train lengths, territory, and infrastructure.[229] AAR's comment included information supporting, or at least not refuting the accuracy of, FRA's position in the NPRM. For instance, AAR's comment included research supporting that Western European rail operations are significantly different in train length when compared to U.S. rail operations, as European freight trains are shorter to accommodate shorter block sizes and a greater number of interlockings.[230] The Class I comments also did not provide further information showing that FRA's statements in the NPRM were inaccurate regarding how foreign, one-person freight train operations do not carry out extensive interlining or switching with other railroads and that many foreign, one-person passenger train operations do not have to share track with freight operations or operate over highway-rail grade crossings.[231] It was for these reasons that FRA concluded in the NPRM that the safety hazards associated with those Western European rail operations are not comparable to those involving U.S. operations.

One significant element reflected in AAR's 2015 sponsored study undermining the Class I railroads' position is that railroads in other countries must sometimes abide by operational restrictions that regulating agencies have placed on one-person train crew operations. For example, this study explained how the Transportation Safety Board of Canada required the implementation of certain safety measures after the catastrophic accident at Lac-Mégantic, Quebec, that FRA described in the NPRM,[232] and that the measures range from better tracking of those trains to specific dispatcher training and fatigue mitigation measures.[233] Similarly, this same study found that the European Union imposed two preconditions on one-person train crew operations: (1) a working ''dead-man control system'' which is the equivalent of what FRA refers to as an ''alerter''; and (2) the equivalent of a U.S. centralized traffic control system (CTC).[234] The study described how in the United States there are three types of signaling control systems (excluding PTC) and, of those systems, CTC affords the highest level of control, automation, and integration of safety logic.[235] In the European signaling control system, dispatchers can remotely operate signals and switches to ensure that trains do not make conflicting movements,[236] but presumably also to limit when or how often a one-person crewmember would need to temporarily climb down from the locomotive to throw a switch. In contrast, not all U.S. railroads have dispatchers and not all dispatchers at U.S. railroads have the capability to operate all switches and fixed derails remotely or have a train crewmember operate such devices by radio. These are the types of safety issues that necessitate evaluation through a risk assessment, as required under the final rule. In Germany, devices are installed on locomotives to automatically adjust for high-speed braking on curves, and there are requirements for a second crewmember when a dead-man device fails or under other unusual circumstances.[237] Therefore, this final rule's requirements for a functioning alerter and related operating rules are consistent with the restrictions other countries have imposed for one-person train crew operations.

Another takeaway from the 2015 AAR study was that it focused on a limited number of accidents that were considered preventable with a multiple-person crew,[238] but the data analyzed

[224] FRA–2021–0032–13056, AAR's Comment at 3.

[225] FRA–2021–0032–13056, AAR's Exhibit 2, a report prepared by Oliver Wyman titled ''Crew-Related Safety and Characteristic Comparison of European and US Railways'' (Apr. 5, 2021). This report appears to be an update of AAR's Exhibit 4, another report prepared by Oliver Wyman titled ''Assessment of European Railways: Characteristics and Crew-Related Safety'' (June 15, 2016).

[226] FRA–2021–0032–13056, AAR's Exhibit 2 at 16.

[227] FRA–2021–0032–13056, AAR's Exhibit 2 at 66–67.

[228] FRA–2021–0032–13056, AAR's Exhibit 3, a report prepared by Oliver Wyman titled ''Analysis of North American Freight Rail Single-Person Crews: Safety and Economics.'' (Feb. 3, 2015).

[229] 87 FR 45580. As stated above, in response to the 2016 NPRM, AAR submitted studies it sponsored assessing European railway safety data with respect to train crew size and describing one-person train crew operations in other countries, including European countries. The 2019 withdrawal discussed but did not analyze these studies' conclusions. 84 FR 24737. For the reasons explained here, FRA finds these studies generally informative but unpersuasive on the matter of regulating train crew size safety, particularly when considered along with the totality of the information discussed and analyzed in the 2022 NPRM and here in the final rule.

[230] FRA–2021–0032–13056, AAR's Exhibit 2 at 4, 13, 66–67 (stating that 40 cars is the average length of European freight trains).

[231] FRA–2021–0032–13056, AAR's Exhibit 2 at 13 (stating that ''the majority of U.S. rail freight does not run on mixed lines with high-frequency passenger services, unlike in Europe'').

[232] 87 FR 45568–69.

[233] FRA–2021–0032–13056, AAR's Exhibit 3 at 8. BLET and SMART–TD's jointly filed comment noted that some railroad commenters pointed to European rail standards to support use of a one-person train crew while ignoring the Canadian safety standards, which BLET and SMART–TD stated are far more comparable to U.S. railroading but clearly do not support reduction in the size of train crews.

[234] FRA–2021–0032–13056, AAR's Exhibit 3 at 11.

[235] FRA–2021–0032–13056, AAR's Exhibit 3 at 4.

[236] FRA–2021–0032–13056, AAR's Exhibit 3 at 11.

[237] FRA–2021–0032–13056, AAR's Exhibit 3 at 12.

[238] FRA–2021–0032–13056, AAR's Exhibit 3 at 19 (explaining how the study limited what data it perceived as relevant to datasets in which the crew has some control and the size of the crew could arguably make a difference in the outcome of an incident).

did not include incidents involving close calls that likely go unrecorded or the potential for quicker response times to take mitigation measures that a multiple-person crew on the scene can take in the moments immediately following a variety of situations as compared with ground-based employees that would first need to be deployed to a scene before engaging in mitigating measures. It seems that the industry's argument focused on a narrower subset of situations where a second crewmember may be beneficial than FRA did in the NPRM. Similarly, the Alliance for Innovation and Infrastructure (AII) commented on the NPRM that a second crewmember has the potential to reduce damage only based on ''a host of assumptions that cannot be proven'' and that, ''hypothetical[ly], it is equally likely that all crewmembers die or are incapacitated, that the crew members are impacted by the bystander effect and do little or no mitigating activity, or that the main mitigation [is] by non-rail personnel.'' [239] FRA disagrees with AII's comment because the comment fails to acknowledge that FRA's central approach, *i.e.,* for each railroad to conduct a risk assessment, would produce an objective risk-based analysis that addresses such questions. This final rule will impose reasonable restrictions, collect data, and address the unique complexities of U.S. railroad operations through a review process. If data or analysis later suggests FRA should consider a different approach, any person could petition FRA for a new rulemaking, or FRA could initiate one.

FRA disagrees with AAR's comment that there is sufficient comparable data on one-person train crew operations to support that such operations are safe. For instance, AAR's comment that the data from passenger operations should be used is typically inaccurate as FRA explained in the NPRM that multiple train crewmembers are typically necessary to meet the requirements of FRA's passenger train emergency preparedness rule so that passenger operations' data is not comparable to a one-person train crew operation.[240] Class I railroad commenters pointed to the 250-mile, Class II, regional railroad INRD's one-person train crew operation as an example for them to follow even though their operations are drastically different because INRD, for instance, described its one-person train crew operations to FRA as hauling a single commodity that did not include hazardous materials.[241] In order to ensure safety in the future, the NPRM explained that the safety record of a few one-person Class II and III train crew operations would not necessarily be indicative of what the safety record might be on the major Class I freight railroads, which tend to operate longer trains, with higher tonnage, for longer distances, and at higher speeds than a short line or regional railroad operation.[242] Further, the analogy is the same when comparing Class I freight railroads to Western European rail operations; both may be complex operations, but the factors making them complex are different. And, as the NPRM proposed, the final rule will not prohibit all one-person train crew operations but allow some under specific conditions and others potentially after a petition is filed, a review process is followed, and an agency special approval is granted.

c. New Technology and Automated Operations

As noted in the NPRM, although current FRA regulations do not explicitly require the presence of a human operator, FRA's regulations were developed and drafted based on a general assumption that a train would be operated by a person, albeit with assistance from technology.[243] For that reason, the NPRM proposed a special approval petition process that would have required a risk assessment before initiating an operation, and the NPRM's background stated that FRA understands that the rail industry is anticipating future growth in automation and is concerned how a train crew staffing rule might impact the future of rail innovation and automation. Further the NPRM noted that a railroad, seeking to use rail automation technology that does not comply with FRA's existing rail safety regulations, may file a petition for rulemaking under FRA's regulations, or a petition for a waiver of FRA's safety rules.[244]

In response to FRA's proposal, some rail industry commenters asserted that the NPRM is anti-technology, that DOT has promoted automated operations for motor vehicles, including trucks, over railroads, and that the NPRM blocks incentives to innovate. For instance, AAR commented that the NPRM would cause a modal shift from railroads to trucks, directly impacting the railroad industry's competitiveness [245]—a position shared by ASLRRA.[246] To support its position, AAR provided a research paper it had commissioned that concluded the NPRM would have profound implications regarding the level and nature of freight competition between railroads and trucking companies, particularly in an era of increased vehicle automation.[247] Although AAR's sponsored research described truck platooning technology [248] as ''nascent,'' and thus just beginning to display signs of future potential, the research suggested substantial future cost savings in the mid-range figure of 29 percent for trucking companies, thereby impacting the ability of railroads to compete and profit.[249]

AAR's sponsored research suggested that a shift from rail to truck shipments may not be true ''where shipment characteristics favor rail transportation to the exclusion of truck [which] is particularly true of many liquid chemical and petroleum products, including plastics.'' [250] The research and other commenters compared existing safety statistics between the non-automated truck and rail industries, and concluded that rail is safer and should therefore be promoted. The AAR-sponsored research also suggested that ''[a]n unbalanced program of technological advancement will divert tens of millions of tons of freight from rail to truck and, in doing so, add measurably to the degradation of air

[239] FRA–2021–0032–12313 at 35. Although AII clearly opposed the NPRM, its analysis seemed conflicted when it concluded that ''[f]or [accident] mitigation, that [a] conductor being anywhere on the train would theoretically help reduce damage.'' *Id.* at 32.

[240] 87 FR 45579.

[241] 87 FR 45568. In the NPRM, FRA summarized INRD's public statements describing its operation that were made during FRA's 2016 train crew staffing rulemaking.

[242] 87 FR 45581. As the NPRM stated, train crews on major Class I freight railroads must generally contend with more complexities than typically found on a short line or regional railroad operation, such as more than one type of signal system, more than one set of railroad operating rules and practices that must be followed during the same tour of duty, or higher train traffic density.

[243] 87 FR 45567.

[244] 87 FR 45586.

[245] FRA–2021–0032–13056.

[246] FRA–2021–0032–13033.

[247] FRA–2021–0032–13056, AAR's Exhibit 9, a report prepared by Mark Burton, Research Associate Professor (Retired from The University of Tennessee), titled ''Rail-Truck Competition in an Era of Automation Technology'' (Dec. 2022).

[248] DOT's Federal Highway Administration describes truck platooning projects whereby a convoy of trucks are partially automated, meaning that the vehicles control the coordinated speeds and braking with the lead vehicles in the platoons, but the drivers maintain steering control and are expected to continuously monitor the driving situation to be ready to assume full control of the vehicles at any time. *https://highways.dot.gov/research/laboratories/saxton-transportation-operations-laboratory/Truck-Platooning.*

[249] FRA–2021–0032–13056, AAR's Exhibit 9 at 6–8.

[250] FRA–2021–0032–13056, AAR's Exhibit 9 at 13.

quality.'' [251] Thus, freight rail industry commenters projected that the NPRM proposing a two-person train crew mandate with exceptions had the potential to dramatically shift freight shipments from rail to truck, cause railroad revenues to fall, diminish public safety, increase fuel consumption, and lead to major increases in the demand for highway capacity.[252]

The American Consumer Institute (ACI), which is described as a non-partisan, educational, and public policy research organization that protects consumers' interests, stated that ''FRA should be following the lead of the trucking industry and to allow as much automation as possible'' to lower costs for consumers and take advantage of the Class I freight railroads' $760 billion investment in PTC since the 1980s.[253] ACI commented that the NPRM would increase costs for consumers and could also have a negative impact on the environment if companies shift from rail to truck shipments for their goods. A similar comment was filed jointly by 19 non-profit, policy think tanks.[254]

FRA's Response

In the NPRM's background, FRA explained how historically the roles of certain crewmembers were nullified by technology and contrasted those situations with the current one in which the rail industry has not made the same type of technological breakthrough case.[255] The comments and research provided by commenters are premised on the assumptions that labor-saving technologies are already developed and that these technologies advance both productivity and operational safety. However, the commenters' conclusions incorrectly assume that the labor-saving technologies are already developed, accepted, and implemented.

For instance, FRA disagrees with those commenters who pointed to the PTC systems as the automated technology they would use to justify removal of a second crewmember. FRA is certainly aware that the PTC systems are sometimes enhanced, through integration of other software that may act like an automobile's cruise control system; yet, to date, even those enhanced PTC systems do not perform all the necessary functions in all operating environments.[256] In addition, PTC technology is currently governing rail operations on approximately 42 percent of the rail network in the United States, and this rule addresses rail operations nationwide.

While FRA is aware that other rail systems, with various levels of autonomous features, are already available or are expected to be built,[257] freight rail industry commenters largely did not suggest that they would be relying on a system other than PTC. For these reasons, no U.S. railroad has yet to make a case that it is ready to implement a reliable system, suitable for the complexity of its operations, and with a high enough level of autonomy that would either: (1) negate the need for any crewmembers; or (2) negate the need for a single crewmember whose central operational duty would be to make an emergency brake application in case of an automated system error or otherwise perform duties normally associated with a conductor, but not be expected to operate the train.

The freight rail industry expressed concern with competition from the trucking industry, especially as automated or partially automated driving technologies such as truck platooning improve, but their concerns do not undermine the basis for this rulemaking which focuses on the rail safety hazards introduced by reducing crew size. The commenters also suggested that the cost of compliance with the rule as proposed would be high enough to shift freight from rail to truck, a potentially less safe form of transport. However, FRA's RIA shows that the final rule's costs are lower than the commenters' projections, which were based on the NPRM, and both FRA and DOT as a whole do not expect such cross-modal impacts under this final rule. DOT's mission statement is ''to deliver the world's leading transportation system, serving the American people and economy through the safe, efficient, sustainable, and equitable movement of people and goods.'' [258] DOT serves its mission consistent with the Federal government's national standards strategy for critical and emerging technology.[259] And while DOT has certainly funded research concerning automated motor vehicles and the trucking industry,[260] it is doing the same by funding research concerning automation in the rail industry, as described below.

FRA supports technological advancement through research and funding.[261] For instance, FRA's current list of approximately 128 projects includes research on: (1) how unmanned aerial vehicles known as drones would allow railroads to inspect larger sections of track at one time and speed up inspections; (2) developing and testing a modular, field-deployable system combining edge computing with advanced artificial intelligence processing to detect and classify track features from a moving platform in near-real-time; (3) developing an artificial-intelligence-aided machine vision for grade crossing safety that would provide real-time alerts for damaged gate arms, flashers, and other critical safety-related issues; (4) ensuring that an interoperable automated train operation system is defined to meet industry safety and automation objectives; and (5) improving rail safety and efficiency objectives when an RCL is used to perform switching operations on the line-of-road without crew presence in the cab of the controlling locomotive, an operation known as ''road RCL.'' [262] Further, FRA is sponsoring research on the human-automation interaction and teaming to affect the design,

[251] FRA–2021–0032–13056, AAR's Exhibit 9 at 17.

[252] FRA–2021–0032–13056, AAR's Exhibit 9 at 18.

[253] FRA–2021–0032–10337. The comment cited an AAR website for the amount of the investment, but incorrectly quoted $780 billion when the website stated $760 billion. *https://www.aar.org/campaigns/ptc/.*

[254] FRA–2021–0032–12300. Rio Grande Foundation; Washington Policy Center; Nevada Policy Research Institute; Bluegrass Institute for Public Policy Solutions; Roughrider Policy Center (North Dakota); John Locke Foundation (North Carolina); Maine Policy Institute; Thomas Jefferson Institute for Public Policy; Josiah Bartlett Center for Public Policy; Cardinal Institute for West Virginia Policy; Idaho Freedom Foundation; Alaska Policy Forum; Maryland Public Policy Institute; Yankee Institute; Mississippi Center for Public Policy; The John K. MacIver Institute for Public Policy; The Buckeye Institute; and the Garden State Initiative.

[255] 87 FR 45567–68.

[256] 83 FR 13583, 13584–85 (Mar. 29, 2018) (citing FRA's ''Request for Information: Automation in the Railroad Industry'' which included a description of two different methods for defining levels of automation).

[257] 83 FR 13584 (describing known rail technologies). It has been over five years since FRA formally recognized the existence of a fully autonomous freight railroad system in Australia operated by a mining company on an approximately 62-mile stretch of track in western Australia but no U.S. railroad has sought to implement that system.

[258] DOT's mission statement, *https://www.transportation.gov/about,* is based on its statutory authority. 49 U.S.C. 101.

[259] The U.S. government will focus standards development activities and outreach regarding the application of ''automated, connected, and electrified transportation, including automated and connected surface vehicles of many types.'' U.S. Government National Standards Strategy for Critical and Emerging Technology (May 2023) at 6–7. *https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/04/fact-sheet-biden-harris-administration-announces-national-standards-strategy-for-critical-and-emerging-technology/?utm_source=link.*

[260] *https://highways.dot.gov/automation.*

[261] *https://railroads.dot.gov/research-development/research-development-and-technology.*

[262] *https://railroads.dot.gov/elibrary/fra-office-research-development-and-technology-current-projects-2023* at 11, 16, 51, 117, and 123.

certification, and implementation of automation and to ensure that safety is enhanced, not degraded, by new technology and automation.[263]

Similarly, FRA disagrees with commenters claiming that FRA failed to consider how the rail industry can use operational innovations or deploy readily available technology to address any safety concerns associated with the operation of a train with fewer than two crewmembers. FRA addressed this issue in the background section titled ''Automated Operations.'' [264] As stated in the NPRM, this rule is not intended to impede rail innovation nor does this rule regulate autonomous operations.[265] The rule simply requires a description of ''any technology that will be used to perform or support tasks typically performed by a second crewmember, or that will prevent or significantly mitigate the consequences of accidents or incidents'' in a petition for special approval.[266] Among other things, this information will allow FRA to ensure that the technology being used to support a one-person operation has gone through the proper waiver or regulatory processes, as necessary.[267]

If a railroad seeks to use technology that does not meet FRA's existing regulatory requirements, the railroad may petition FRA for a rulemaking that would revise FRA's regulations to permit the use of the technology to fulfill FRA's regulatory requirements. A rulemaking petition would need to comply with FRA's Rules of Practice [268] and would have to follow the Department's regulatory process in compliance with the Administrative Procedure Act.[269] Alternatively, a railroad could petition FRA for a waiver from any applicable regulations to use technology that does not meet FRA's existing regulatory requirements.[270] Similar to a petition for rulemaking, a waiver petition would also need to comply with FRA's Rules of Practice [271] and must include all required supporting information, including a safety justification. When petitioning for a rulemaking or a waiver to use technology that does not meet FRA's existing regulatory requirement, a railroad seeking to use an autonomous operation without a minimum of a one-person train crew would also be required to petition FRA for a waiver from this final rule, specifically the requirements in § 218.123.

d. Transportation of Hazardous Materials

AAR opposes the NPRM's proposed prohibition on one-person train crew operations transporting certain types or quantities of hazardous materials by commenting that there is no evidentiary basis for concluding that one-person operations are less safe than two-person operations and the NPRM did not explain why any increased risks posed by the transportation of hazardous materials could not be adequately addressed through the adoption of safety protocols tailored to those risks.[272]

FRA's Response

In the discussion of comments and conclusions above, FRA responded to comments from short line rail industry commenters about the proposed two-person train crew mandate with respect to the transportation of hazardous materials. Aside from individual citizen commenters who were generally concerned about the safety of hazardous materials being transported by a train with a one-person crew or potential delays to mitigation measures with only a one-person crew, few comments were received on this subject.

In summary, the NPRM proposed an overarching prohibition on fewer that two-crewmember operations of trains containing certain quantities and types of hazardous materials that have been determined to pose the highest risk in transportation from both a safety and security perspective (*i.e.,* trains transporting 20 or more car loads or intermodal portable tank loads of certain hazardous materials, or one or more car loads of hazardous materials designated as RSSM as defined by the Department of Homeland Security). FRA described in the NPRM how DOT must balance how hazardous materials are essential to the U.S. economy with the risks posed by accidental and non-accidental releases of those materials during transportation.[273] The NPRM explained how FRA coordinates with PHMSA to regulate and enforce the safe and secure transportation of hazardous materials by rail and how FRA also coordinates with the Department of Homeland Security and its TSA on rail transportation security issues.

Further, the NPRM explained that DOT considers train crewmembers as ''hazmat employees'' requiring specific types of training based on the dangers posed by hazardous materials generally and the additional dangers of a release in transit due to an accident, derailment, theft, or attack.[274] The background in the NPRM described the various types of training required for hazmat employees and how the training is required initially and recurrently at least once every three years. Also, the NPRM summarized how PHMSA defined ''high-hazard flammable trains,'' how certain safety and security factors must be considered in the risk analysis that would be used to determine routing requirements, and how PHMSA only indirectly addressed the human factors issues in its rulemaking because PHMSA understood that FRA initiated a separate, key regulatory safety initiative to address crew size safety.[275] For these reasons, FRA stated in the NPRM that the proposed train crew size safety requirements for trains carrying hazardous materials are complementary to existing DOT requirements that highlight the greater risks posed by certain types of shipments.

In response to various rail industry commenters, the final rule does not contain the proposed overarching prohibition on one-person train crew operations transporting certain quantities and types of hazardous materials. Instead, in the final rule, railroads that cannot meet any of the exceptions are permitted to petition for

[263] Id. at 130.

[264] 87 FR 45586.

[265] The 2019 withdrawal stated that a train crew staffing rule would unnecessarily impede rail innovation and automation, 84 FR 24740, without providing data to support that position. To the contrary, this final rule does not prohibit any specific type of one-person train crew operation or prohibit the use of technology to perform duties typically performed by a second crewmember. Rather, this final rule ensures that minimum safety measures are in place for one-person train crew operations and that, for certain more complex one-person train crew operations, the risk of foreseeable hazards is mitigated. As explained in the 2022 NPRM, in re-evaluating the information and safety issues concerning one-person train crew operations, FRA concluded that ''a train crew staffing rule would not necessarily halt rail innovation or automation [n]otwithstanding the statements made in the 2019 withdrawal [because] . . . a rule addressing crew size could effectively serve as a tool to ensure new technologies involving automation and other rail innovations are thoroughly reviewed and shown to be consistent with railroad safety before they are implemented.'' 87 FR 45571. This final rule provides such a process.

[266] § 218.131(b)(11), proposed as § 218.133(b)(11).

[267] *See* 49 CFR part 211, subparts C and E (providing FRA's rules of practice for waivers and miscellaneous safety-related proceedings and inquiries); and *see e.g.* 49 CFR 236.909 (reflecting the minimum performance standards for the introduction of new railroad products or changes to existing railroad products).

[268] Specifically, 49 CFR part 211, subparts A and B.

[269] 5 U.S.C. 551–559.

[270] *See* 49 CFR part 211, subpart C.

[271] Specifically, 49 CFR part 211, subparts A and C.

[272] FRA–2021–0032–13056.

[273] 87 FR 45576–78.

[274] 87 FR 45576, especially footnote 127.

[275] 87 FR 45577 (citing PHMSA's rule titled ''Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains'') at 80 FR 26644, 26654–55 (May 8, 2015).

special approval to initiate or continue one-person train crew freight operations transporting hazardous materials.[276] Moreover, as previously addressed in this discussion of comments and conclusions, the final rule provides Class II and III railroads with an exception to the special approval process to continue legacy one-person train crew freight operations that have been established for at least two years before the effective date of the final rule, including when the railroad has established a legacy operation in which it wants to continue transporting certain hazardous materials.

FRA expects that each railroad filing a petition for special approval will build upon that foundation of specified safety requirements and take further mitigation measures to address the hazards and reduce the risks involved in transporting hazardous materials by trains staffed with a one-person train crew. Further, the special approval procedure in § 218.135 will ensure that the public and rail employees are provided an opportunity to comment and provide FRA with an opportunity to review and approve the railroad's operational plans.

e. FRA Action on Regulating Crew Staffing

Class I freight railroad commenters stated that FRA failed to adequately explain its reconsideration of its previous positions on regulating the safety issues regarding train crew size. AAR asserted that FRA ''fail[ed] to adequately explain its total reversal in position in light of the views and conclusions it expressed in the 2019 Withdrawal Order,'' and that FRA ''does not adequately explain its changed position in light of the views it expressed in the 2016 NPRM.'' [277] AAR provided examples of statements from the 2016 NPRM on train crew staffing and the 2019 withdrawal that, according to AAR, the 2022 NPRM contradicts without sufficient explanation for the changed position. For example, AAR highlighted the 2019 withdrawal's determinations that ''issuing any regulation requiring a minimum number of train crewmembers would not be justified because such a regulation is unnecessary for a railroad operation to be conducted safely at this time,'' and that ''no regulation of train crew staffing is appropriate.'' [278] In addition, AAR pointed to FRA's statement in the 2016 NPRM that ''FRA cannot provide reliable or conclusive statistical data to suggest whether one-person crew operations are generally safer or less safe than multiple-person crew operations.'' [279] In its comment, BNSF stated that the 2019 withdrawal extensively catalogued data and other evidence and concluded that this available information ''did not establish that one-person crew operations are less safe than multi-person crews.'' [280] BNSF asserted that the 2022 NPRM dismisses the 2019 withdrawal's analysis without sufficient explanation or justification.

FRA's Response

After considering all the evidence before it, including comments and data post-dating the 2019 withdrawal that is discussed in the 2022 NPRM, FRA has reassessed its prior positions for two independent reasons.[281] First, as the NPRM states, the decision of the U.S. Court of Appeals for the Ninth Circuit to vacate and remand the 2019 withdrawal left FRA with various options on how, or whether, to address the matter of crew size safety. In deciding how to proceed, FRA reconsidered several of the safety issues discussed in the 2019 withdrawal. FRA determined that the 2019 withdrawal de-emphasized safety concerns raised by FRA-sponsored research on the cognitive and collaborate demands of crewmembers and by commenters on the 2016 NPRM. For example, as the 2022 NPRM explains, the research raises safety concerns regarding one-person train crews, such as the loss of a second crewmember to notice and correct errors.[282] FRA adheres to that reassessment. This final rule is justified based on FRA's reevaluation of those safety concerns and the threat they pose to public safety.

Second, in reassessing regulation of safety issues regarding train crew size, FRA also considered information not analyzed in the 2019 withdrawal, such as technological trends and operational changes on Class I freight railroads since 2019. Train accidents can impose enormous and sometimes incalculable costs on individuals, communities, and the environment, and recent industry changes, such as utilizing longer trains than the historical norm, introduce variables that may make it challenging for the industry to continue the past two decades general trend of improved safety in rail operations. As stated in the NPRM, freight train length has increased in recent years, and this trend may have cascading safety impacts unless mitigated by technology, training, or other processes.[283] And, as explained above, the latest rail safety data reflects some troubling industry trends that suggest heightened caution and awareness are needed in rail safety and operational planning. Although trains have a relatively strong safety record, the rate for all human factor caused accidents has increased in recent years, notably after the 2019 withdrawal.[284] While technological advances in the rail industry, such as PTC, may decrease those accidents in the future, uncertainty related to new operating technologies can affect train safety.[285] Furthermore, the research indicates that PTC implementation should not be presumed to lead to fewer crew tasks.[286] This point was further corroborated by extensive comments and testimony in this rulemaking from train crewmembers who work with PTC daily and by their representatives.[287]

In sum, FRA reconsidered information previously analyzed by FRA on crew size safety and considered additional relevant information, including safety data indicating potentially worsening trends since the 2019 withdrawal was issued. Based on this assessment, FRA determined that it needed to change its position from the 2019 withdrawal and concluded that the regulatory requirements in this final rule are necessary to ensure that trains are adequately staffed for their intended

[276] As explained in the discussion above of the short lines' comments, Class II and III railroads seeking to initiate a new one-person operation transporting hazardous materials of the types or quantities described in § 218.123(c) are required under the final rule to petition FRA for special approval and conduct a risk assessment. A special approval petition is also required for continuing an existing operation that has not been established for at least two years before the effective date of the final rule. To initiate other types of one-person crew operations, Class II and III railroads are only required to provide notification and comply with certain operational requirements. The final rule requires Class I railroads to petition for special approval and conduct a risk assessment to initiate any one-person train crew operation.

[277] FRA–2021–0032–13056 at 9–11.

[278] 84 FR 24741 (May 29, 2019), quoted by FRA–2021–0032–13056 at 10.

[279] 91 FR 13919 (Mar. 15, 2016), quoted by FRA–2021–0032–13056 at 10.

[280] FRA–2021–0032–12996 at 1–3.

[281] 87 FR 45564, 45571–76 (July 28, 2022) (section III.D of the NPRM, titled ''Reconsideration of the Safety Issues'').

[282] *See, e.g., id.* at 45572 (explaining in detail how FRA has ''revisit[ed] the research . . . to explain how the safety concerns the research raises helped in the development of the proposed requirements for this rulemaking'').

[283] 87 FR 45564, 45572.

[284] *See* Section I., Executive Summary, for a discussion of recent data.

[285] *See* 87 FR 45564 at 45572–45573 (citing Technology Implications of a Cognitive Task Analysis for Locomotive Engineers—Human Factors in Railroad Operations, Final Report, dated January 2009, DOT/FRA/ORD–09/03).

[286] Id. at 45572–73.

[287] *See, e.g.,* FRA–2021–0032–13038 at 2, FRA–2021–0032–13049 at 9 and 23, FRA–2021–0032–13133 at 2, and FRA–2021–0032–0711 at 1–2.

operation and railroads have appropriate safeguards in place for safe train operations whenever using a one-person train crew.

FRA further notes that the 2022 NPRM and this final rule differ in approach from the previous rulemakings addressing train crew size. Instead of broadly mandating two crew members, the NPRM proposed to require, and this final rule requires, two crew members for the most complex operations until a railroad analyzes an operation and persuasively demonstrates that risks associated with eliminating the second crew member are reasonably mitigated. By allowing railroads to petition for a one-person crew, this final rule accommodates the development of new technology while also ensuring the safety of crews and the public by requiring an analysis that shows that these innovations will not make trains less safe. FRA's incremental approach—that preserves the status quo while providing latitude for railroads to explore benefits from advances in technology—promotes FRA's statutory mandate to issue regulations ''as necessary'' for ''railroad safety.'' [288]

f. Risk Assessments and FRA's Review Standard

AAR asserted in its written comment and reiterated in oral testimony at the public hearing that the proposed risk assessment requirements are flawed.[289] In support of its comment, AAR provided several examples demonstrating how the proposed risk assessment might play out using recent accident/incident data and how Class I railroads could never expect a petition for special approval to be granted under the NPRM. AAR also suggested that because Class I railroads are required to have a risk-reduction program, FRA could have allowed these railroads to follow the risk-reduction approach set forth in their approved risk-reduction plans rather than the approach in this NPRM regarding crew size safety requirements.

APTA commented that its passenger rail operation members support risk-based approaches that allow railroads to identify, mitigate, and manage safety risks in a manner that reflects the scale and specifics of individual operations. However, APTA asked FRA to reconsider the proposed risk assessment requirements as unnecessary for railroads that already follow an established methodology under FRA's existing system safety program requirements.[290] APTA also had specific concerns about FRA's proposed risk assessment methodology and whether a minor event might be classified as catastrophic. Further, APTA's comment raised other policy concerns regarding the proposed risk assessment, including whether the proposed requirements could make information compiled or collected for that risk assessment public when, under the existing system safety program requirements, similar information would receive at least some legal protections.[291] CRC's comment was also similar to APTA's in its approach to the risk assessment, requesting that FRA leverage its existing system safety requirements. CRC was concerned with the risk assessment burden in the event an approved passenger operation wants to make material modifications to the operation.

TTD commented that it perceived the proposed alternative risk assessment as vague when compared to the detailed and specific proposed risk assessment.

FRA's Response

The NPRM provided background on the risk assessment requirement, how it is useful, and how a risk assessment must be conducted in an objective manner to be effective.[292] FRA explained why it proposed specific content and methodology requirements for conducting risk assessments and why it proposed an option to allow any railroad to seek FRA's approval to use an alternative risk assessment methodology.[293] The NPRM also included background regarding the expected impact of the rule on the safety of rail operations.[294] FRA considered all the comments regarding the proposed risk assessment, and the final rule's requirements are expected to address these comments in several overarching ways.

For instance, because FRA did not intend to propose requirements that might be viewed as nearly impossible to meet statistically, the final rule removed what commenters perceived as the proposed potential quantitative analysis obstacles. In addition to revisiting aspects of that quantitative risk-based hazard analysis, the final rule includes guidance, in Appendix E, on how a railroad may prepare a risk-based hazard analysis and compare the risks to determine if a proposed one-person train crew operation will be as safe or safer than a two-person minimum train crew operation when all mitigations are in place. FRA expects that some railroads will favor this objective approach when conducting a required risk assessment under this final rule.

In response to comments, the final rule also includes changes from the NPRM that provide consistency with existing requirements, specifically, consistency with both the System Safety Program requirements in part 270 and the Risk Reduction Program requirements in part 271. Parts 270 and 271 require covered railroads to have a systemwide and ongoing risk-based hazard management program that proactively identifies hazards and mitigates risks resulting from those hazards, using a risk-based hazard analysis. Accordingly, this final rule includes the minimum requirements for a risk-based hazard analysis that follows similar requirements in § 270.103(p) and (q), and § 271.103(b), allowing railroad to build upon existing analyses when preparing the required risk-based hazard analysis as part of a petition for a one-person crew.

To simplify the risk assessment process and address perceived potential quantitative analysis obstacles, the final rule includes the minimum performance standards used in § 236.909 for the introduction of new railroad signaling and train control components, products or systems, and this standard is also required to promote the safe design, operation, and maintenance of safety critical locomotive electronic control systems, subsystems, and components.[295] Specifically, the final rule makes clear that the introduction of a new product or change cannot result in risk that exceeds the previous condition.

With respect to commenters' information security concerns, FRA decided to retain the same approach as proposed. For reasons explained in the NPRM, FRA determines that exercising FRA's statutory discretion under 49 U.S.C. 20118 to protect certain risk analyses from public disclosure pursuant to Exemption 3 of the Freedom of Information Act (FOIA), 5 U.S.C. 552(b)(3), would not be consistent with the final rule's provisions that make petitions and the risk analyses they contain available for public comment.[296] Nevertheless, other FOIA exemptions may apply. For example, FRA reminds railroads that information

[288] 49 U.S.C. 20103(a).

[289] FRA–2021–0032–13056, AAR's comment at 39–45 and AAR's Exhibit 5, a comment prepared by ICF International titled ''Comments on Train Crew Size Safety Requirements.'' (Dec. 12, 2022).

[290] FRA–2021–0032–12947, referring to 49 CFR part 270.

[291] *See* 49 CFR 270.105.

[292] 87 FR 45582–84.

[293] 87 FR 45584.

[294] *Id.*

[295] 49 CFR part 229, subpart E (establishing minimum railroad locomotive safety standards for locomotive electronics).

[296] 87 FR 45585.

required to be submitted as part of the risk-based hazard analysis that a submitter deems to be trade secrets, or commercial or financial information that is privileged or confidential under Exemption 4 of FOIA 5 U.S.C. 552(b)(4), should be so labeled in accordance with the provisions of 49 CFR 209.11. FRA handles information labeled as such in accordance with the provisions of § 209.11.

Regarding the potential use of risk-based hazard analysis information in litigation, FRA decided not to include in the final rule information protections like those adopted in the system safety program and risk reduction program rules. Congress explicitly authorized setting forth specific information protection requirements for implementation of those rules, and FRA does not have a similar statutory authorization to do so here.[297] For further discussion on this issue, FRA refers readers to the NPRM's explanation of FRA's statutory authority to protect certain information from use in litigation.[298]

Lastly, in response to comments regarding the risk assessment, the final rule retains the NPRM's proposed alternative standard provision in § 218.133(b). That provision allows a railroad the option to submit a petition for FRA's approval of the use of alternative methodologies or procedures, or both, to assess the risk associated with a proposed operation. Again, this was an option that was proposed but seemingly missed by commenters that acknowledged the value in a risk assessment but requested flexibility in how to conduct it. FRA understands that some commenters, such as TTD, suggested that the alternative standard provision for a risk assessment is vague, but FRA does not agree because approval of alternative methodologies or procedures, or both, would be expected to be based on standards established by leading governmental or non-governmental standardization organizations.

g. Remote Control Operations

Several commenters raised concerns with the NPRM's specific freight train exception to the crew staffing requirements that applied to remote control operations in proposed § 218.129(c)(3). The following is a summary that is representative of the comments received.

ASLRRA and other short line rail industry commenters raised objections to FRA's proposed exception for a one-person train operation controlled by a remote control operator because they claimed it created new burdens that they do not currently comply with or that are unnecessary given equipment standards for these operations. ASLRRA's comment included a statement from the Texas and Northern Railway regarding how it would not qualify for the remote control operation exception because this short line: (1) does not maintain technology or protocols to monitor a train's real-time progress; (2) does not have a method of determining the train's approximate location when communication is lost with a one-person train crew; and (3) does not utilize a dispatcher.[299] Similarly aligned commenters pointed to the proposed requirement that the remote control operator must stay in the locomotive cab except in emergencies, a condition that the commenters suggested would be unnecessary for that person's safety, even on main track, given that the remote control operator can operate the train safely from the ground or other locations on the train. Also, commenters objected to a proposed requirement in the NPRM that a remote control operation be required to have an alerter when the remote control technology they use already has similar safety features.

FRA's Response

In proposing the crew size safety requirements as conditions for using a one-person train crew with a remote control operation, FRA started with the premise that most remote control train operations are peripheral to switching operations in a yard or at a customer's facility because the remote control technology was designed with a primary focus on making switching operations more efficient. Because an RCL is controlled by an operator with a remote control transmitter strapped to their chest, an operator does not need to stay in the locomotive cab and has versatility to do other safety-related tasks such as uncouple cars, throw hand-operated switches, and determine that track is clear for their train movement. Thus, when in switching or train service, a remote control operator may be on the ground, on the lead locomotive (although not necessarily in the locomotive cab), or on another car or locomotive.

Remote control operations are typically crewed by one operator, who fulfills the roles and responsibilities of both the locomotive engineer and conductor, or by two remote control operators, each with a remote control transmitter, so that they can alternate controlling the RCL. Although a remote control operation could have three or more train crewmembers, that would be atypical and would likely involve a third crewmember who is training to be a remote control operator. Although an RCL may remain in a particular rail yard for switching solely within that yard, it is common for a remote control operator to take an RCL from a rail yard to a customer's facility as a local train that can drop off or pick up rail cars at one or more customer's facilities.

In the NPRM, FRA explained how remote control operations that travel between yards or customers' facilities, with or without cars, were trains ''not in switching service'' and were thus potentially subject to the NPRM's proposed requirements if operated with a one-person train crew.[300] For this reason, FRA proposed an exception for RCL operations with the intention that the proposed general train crew staffing requirements would not apply but that other conditions would apply. In the NPRM, FRA proposed to address narrow safety concerns involving the use of an RCL by codifying long-standing agency guidance for the use of the remote control technology during non-switching service. These proposed requirements were intended to allow remote control operations with a one-person train crew as an exception if the operation was limited in complexity by weight, tonnage, grade, or other factors that reflected guidance previously accepted by industry stakeholders.[301]

The NPRM therefore proposed to codify FRA's guidance on accepted industry safe practices for remote control operations. However, upon further consideration, FRA has determined that addressing this issue in this rulemaking is unnecessary. In deciding not to adopt the proposed remote control operations exception, FRA determined that the requirements for remote control operations, proposed in the NPRM, would be unnecessary as duplicative of existing requirements. For instance, this final rule will not require an alerter on an RCL to address the incapacitated locomotive engineer scenario because FRA's existing locomotive safety standards establish minimum equipment standards for an RCL that include an operator alertness device and a tilt feature that together perform the same functions as an

[297] 49 U.S.C. 20119, 49 CFR 270.105 and 81 FR 53850, 53859 (Aug. 12, 2016), and 49 CFR 271.11 and 85 FR 9262, 9263 (Feb. 18, 2020).

[298] 87 FR 45585.

[299] FRA–2021–0032–13033, att. L (statement from Transtar LLC/Texas and Northern Railway).

[300] 87 FR 45594.

[301] 87 FR 45594–95.

alerter.[302] Likewise, there is no need to require enhanced communication or train tracking requirements for an RCL when FRA's existing locomotive safety standards establish a prohibition on the use of one-person operations with remote control locomotive systems that do not automatically notify the railroad in the event a remote control operator becomes incapacitated or the tilt feature is activated.[303]

However, based on a suggestion from some labor organizations, FRA may initiate a comprehensive review of every type and aspect of remote control operations to determine whether the safety of those operations could be improved through regulation or other actions.

*F. Consideration of Requirements More Stringent Than Those Proposed*

Some of the commenters supporting the NPRM stated that, in their view, the NPRM did not go far enough. Specifically, these commenters supported more stringent requirements that would permit fewer or no exceptions to a two-person train crew, or include a requirement that the second crewmember be a person who is a certified conductor under FRA's requirements in 49 CFR part 242.

TTD supported the proposed annual reporting requirements and recommended more stringent requirements that, instead of FRA granting special approval in perpetuity, would require each railroad to file a new petition for special approval after two years. Similarly, TTD supported a more stringent requirement to establish a process whereby FRA would periodically review the enumerated exceptions and seek public input whether to retain them.

SMART–TD's Kansas State Legislative Board commented that railroads should be required to maintain a two-person crew in the control compartment of the lead locomotive unit of each train, a more stringent requirement than what FRA proposed.[304] This comment raised safety concerns with trains being built too long for available sidings, risk of sabotage, and how a two-person team can combat fatigue.

SMART–TD's New Jersey State Legislative Board raised the concern that the NPRM's proposed process of granting exceptions to new and existing single-person crew operations was disconcerting as it seemed to place the efficiency of rail operations over safety.[305] The comment raised a variety of safety concerns as a basis for establishing a more stringent two-crewmember train crew requirement. For instance, this commenter stated that there is a great need for crewmembers to assist rail passengers in a variety of emergency situations. This local division of SMART–TD placed emphasis on two crewmembers assisting each other as a team to battle fatigue, provide backup to reduce mistakes, and improve situational awareness. The commenter raised a concern about hazardous materials traveling by rail through New Jersey's dense urban areas with only a one-person train crew and the potential for a catastrophic accident. The commenter stated that, with a one-person train crew, motor vehicle traffic could significantly slow a response by the railroad's utility employees responding to a train breakdown as well as local emergency personnel responding to other types of emergencies—situations where a second crewmember can more quickly assist because they are already present. The commenter also disagreed with FRA's proposed criteria for continuing legacy operations and initiating new operations and stated that railroads should not be allowed to assess their own risks in a risk assessment. This local division of SMART–TD recommended that risk assessments be conducted by the National Transportation Safety Board (NTSB) and that FRA should use a waiver alternative to the special approval process.

The Nebraska Public Service Commission (NPSC), which oversees railroad safety in Nebraska, advocated for FRA to adopt an absolute prohibition against train operations with fewer than two-person crews.[306] NPSC is concerned that the safety issues described in the NPRM would be present in the scenarios proposed as exceptions. NPSC stated that the railroad industry's opposition to the rule and need for exceptions for financial or other reasons should not be given greater weight than the need to maintain or improve the safety of the crew and the public.[307]

Railroad Workers United (RWU), a group representing railroad workers in North America that are not managers or supervisors, commented that FRA should prohibit all one-person train crew operations.[308] RWU commented that there is no safe way in the United States to run a train with a single crew member and that safety dictates never to allow a single point of failure.

FRA's Response

Although FRA did not adopt all proposals identified by commenters, the comments raised practical issues or problems with the proposed exceptions that led FRA to revise its approach in this final rule. For example, the commenters stated that certain one-person train crew operations that were proposed for exceptions in the NPRM would pose equivalent safety concerns to that of other one-person train crew operations FRA proposed to prohibit or regulate through the special approval process. FRA agrees with the comments pertaining to the proposed helper service and lite locomotive(s) consist exceptions, which were proposed without any conditions attached. Because FRA agrees with the commenters that those two types of one-person train crew operations pose the same safety concerns as the others that were proposed with conditions attached, FRA revisited those exceptions in § 218.129(a)(4) and (5) and decided to attach similar conditions. FRA's decision to revise these exceptions and impose requirements in the final rule that are more stringent than those previously proposed is based on several considerations. For instance, FRA considered that railroads with a need for helper service or that regularly move locomotives without cars are mostly Class I and II operations that have newer locomotives, placed into service on or after June 10, 2013, or that would permit the controlling locomotives to operate at speeds in excess of 25 mph [309] and, thus, likely have working alerters installed in their locomotives. These operations would then need to add operating rules addressing the communications and safety of the one-person train crew and addressing how the railroad will take mitigation measures to address certain situations that could pose hazards to rail employees or the public—a burden, but not a significant one. Because a Class III railroad would generally own fewer miles of track than a Class I or II railroad and operate fewer trains, these short line railroads typically would provide enough locomotive power to traverse the track and would not be expected to use helper service as a regular business practice. Similarly, a lite locomotive

[302] 49 CFR 229.15, in particular paragraph (a)(13).

[303] *Id.,* in particular paragraphs (a)(15) and (16).

[304] FRA–2021–0032–9397.

[305] FRA–2021–0032–10602.

[306] FRA–2021–0032–10121.

[307] The Chicago Federation of Labor, stating that it represents tens of thousands of railroad workers who support the need for at least two crewmembers on all trains. FRA–2021–0032–6837. A similar comment was made by the International Brotherhood of Electrical Workers Local Union 146, Decatur, IL. FRA–2021–0032–10465.

[308] FRA–2021–0032–8001.

[309] 49 CFR 229.140(a).

consist is typically used by Class I and II railroads to move locomotives from one yard to another to optimize their availability to move cars; in comparison, Class III railroads might not have more than one yard or such a complex business model that locomotives would regularly be moved without cars from one location to another. With regard to mine load out, plant dumping, and similar operations, FRA does not agree with the comments that these types of operation would always have duties requiring a second crewmember, and thus the final rule retains the exception for those operations as proposed.

FRA also did not agree with commenters who suggested that railroads should be required to maintain a two-person crew in the control compartment of the lead locomotive unit of each train, as that would apply a more stringent standard than a railroad meeting the current status quo of using two-person train crews. FRA is concerned that if it created such a stringent standard, railroads would be compelled to employ a three-person train crew to do the job that currently only takes two crewmembers. It could also create an impossible standard for certain passenger train operations in which the locomotive cab is not large enough to accommodate a second crewmember.

## III. Section-by-Section Analysis

This section responds to public comments and identifies any changes made from the provisions as proposed in the NPRM. Provisions that received no comment, and are otherwise being finalized as proposed, are not discussed again here.[310]

*Section 218.5 Definitions*

This final rule adds 17 definitions to part 218—Railroad Operating Procedures. Part 218 prescribes minimum requirements for railroad operating rules and practices. The analysis in the NPRM is applicable for this section for the following terms which will have the same definitions as proposed: ''FTA,'' ''hazard,'' ''mishap,'' ''risk,'' ''tourist train operation,'' ''tourist train operation that is not part of the general railroad system of transportation,'' ''trailing tons,'' and ''train.'' [311] The remaining terms are described below.

The NPRM proposed a definition for ''Associate Administrator'' that was similar to the existing definition of ''Associate Administrator for Safety'' in § 218.93, a definition only applicable to part 218, subpart F. To prevent having two similar definitions to describe the same FRA official, this final rule removes the existing definition from subpart F and replaces it with the definition as proposed in the NPRM so that the term ''Associate Administrator for Safety'' has the same meaning throughout part 218.

This final rule includes two definitions not specifically proposed in the NPRM, but based on descriptions of two types of operations contained in proposed requirements. First, the final rule defines ''helper service train operation'' to mean a train that is ''a locomotive or group of locomotives being used to assist another train that has incurred mechanical failure or lacks sufficient tractive force necessary to traverse a particular section of track due to train tonnage and the grade of the terrain.'' This definition is similar to the NPRM's definition of ''helper service'' in proposed § 218.125(a) but additionally clarifies that it does not matter whether the train that the ''helper service operation'' is assisting is on ''difficult terrain.'' [312] ''Lite locomotive train operation'' is defined as meaning the train is a locomotive or a consist of locomotives not attached to any piece of equipment or attached only to a caboose. This definition is the same as FRA proposed in § 218.125(b) of the NPRM within the requirements for the ''lite locomotive'' exception.

The final rule includes a definition for ''locomotive, MU'' to refer to a type of locomotive that can transport passengers. An MU locomotive is a general term that includes a diesel- or electric-multiple-unit (DMU or EMU) operation, as proposed in the NPRM, and would also include other self-propelled rail rolling equipment regardless of the power source. The NPRM only used the terms DMU or EMU, which would not be as inclusive, as it would only cover diesel or electric power sources, while steam, liquified natural gas, hydrogen, or other power sources may be available.

Based on FRA's review of the comments, there appears to be some confusion about what FRA meant by a one-person train crew operation. To remove any ambiguity, in this final rule, FRA is adding two new definitions. First, FRA is adding a definition for the term ''one-person train crew.'' This term is intended to clarify that, for purposes of this final rule, there are two scenarios in which a railroad will be considered as operating with a one-person train crew. In the first scenario, there is only one person assigned to the train as the train crew and that single, assigned person will be performing the duties of both the locomotive engineer and the conductor. Accordingly, in this scenario, the sole person assigned as the train crew will need to be certified as both a locomotive engineer and a conductor so that person can perform the duties of both of those roles; this scenario would also include alternative arrangements in which other rail employees that are not assigned train crewmembers temporarily assist the train.

In the second scenario, two or more persons are assigned to a train as the train's crew, but only the locomotive engineer travels on the train when the train is moving because the remainder of the train crew, that would include the conductor if the locomotive engineer is not the assigned conductor, is assigned to intermittently assist the train's movements. In this second scenario, the remainder of the train crew is typically traveling in a motor vehicle and will be required to assist the train when switching cars in a yard or at a customer's facility, as well as assist the train when necessary to protect a crossing with flag protection, throw a switch or derail, or perform other duties associated with the train assigned. This second scenario clarifies that when only one crewmember is traveling with the train, even if there are additional crewmembers intermittently assisting and assigned to the train, the train will be considered a one-person train crew operation.

The second definition FRA is adding in this final rule is a definition for the term ''one-person train crewmember.'' This final rule defines ''one-person train crewmember'' to mean, in the context of a one-person train crew operation, the single assigned person who is responsible for performing the duty of the locomotive engineer and will be traveling in the operating cab of the controlling locomotive when the train is moving. If there is a second crewmember traveling in a motor vehicle, that second crewmember would not be the one-person train crewmember.

This final rule's definition for ''risk assessment'' differs slightly from the proposed definition in that the NPRM, which referred to operations with ''fewer than two crewmembers.'' FRA has not adopted that phrasing in the final rule. Instead, this final rule refers to risk assessments related to ''one-person train crews,'' as this rule applies to one-person train crew operations and

[310] 87 FR 45587–45605.

[311] 87 FR 45587.

[312] The statement in proposed § 218.125(a) that ''helper service includes traveling to or from a location where assistance is provided'' is located in § 218.129(a)(4) of this final rule.

does not apply to autonomous operations.

This final rule defines ''switching service or operation'' in the same way as the proposed definition did for ''switching service.'' The change in the term's name will harmonize it with its use throughout part 218. ''Switching service'' and ''switching operation'' are used interchangeably throughout part 218 and in this final rule.

In this final rule, FRA has added a definition for ''unit freight train.'' As used in this final rule, ''unit freight train'' means a freight train composed of cars carrying a single type of commodity. In the NPRM, FRA proposed an exception for a ''mine load out, plant dumping, or similar operation'' that included a definition of a unit freight train. FRA moved the proposed ''unit freight train'' definition into the definitions section, and the ''mine load out, plant dumping, or similar operation'' exception that was proposed in § 218.129(a) is in § 218.127(a) of this final rule.

*Section 218.99 Shoving or Pushing Movements*

This final rule amends this section to remove ambiguity and harmonize three current requirements with terms that that will apply to the entirety of part 218.

Paragraph (a)(2) is amended to change ''switching activities'' to ''switching service activities,'' which will thereby invoke the definition added in § 218.5 for ''switching service or operation.'' The amendment will not change the meaning of the section but may help clarify what is meant by switching service as that term will now be defined.

Paragraph (b)(3) will be amended to change ''a lite locomotive consist'' to ''a lite locomotive train with two or more locomotives that is operated from a single control stand.'' This revision will allow FRA to remove the definition of ''lite locomotive consist'' in § 218.93, as the term is not used elsewhere in part 218. This revision will also allow FRA to use the term ''lite locomotive train,'' which is defined in § 218.5. The amendment will not change the meaning of the section.

Paragraph (e)(2) will be amended to remove the term ''manned helper locomotives'' and replace it with ''helper service train operation'' which is defined in § 218.5. A helper service train operation has the same meaning as helper locomotives with a train crew. Thus, rather than using different terminology that has the same meaning within part 218, this final rule will amend this paragraph.

*Section 218.121 Purpose and Scope*

Generally, the purpose and scope of this final rule remain the same as proposed—to ensure trains are adequately staffed and have appropriate safeguards in place for safe train operations under all operating conditions. Accordingly, FRA is adopting paragraph (a) as proposed, making minor editorial revisions to paragraph (b), and adding a new paragraph (c) which essentially moves the proposed exception for remote control operations, previously found in proposed § 218.129(c)(3), to a new paragraph (c) of this section. FRA is modifying paragraph (b) of this section to replace the references to ''train crew staffs'' and ''crew staffing,'' with the terms ''train crews'' and ''crew size'' respectively. These revisions are for clarity and readability only. No substantive change is intended. Consistent with the NPRM, paragraph (b) further notes that: (1) the minimum crew size requirements in the final rule reflect the potential safety risks posed to railroad employees, the public, and the environment; (2) the final rule prescribes minimum requirements for the location of a second train crewmember on a moving train and promotes safe and effective teamwork; and (3) railroads may prescribe additional or more stringent requirements in operating rules, timetables, timetable special instructions, and other instructions.

Paragraph (c) of the final rule has been added based on comments received. In the discussion of comments and conclusions, FRA explained commenters' concerns with the exception for remote control operations as proposed in § 218.129(c)(3). For the reasons explained in FRA's response to those comments, FRA has not adopted the exception; instead, FRA has added paragraph (c) to clarify that the requirements in this subpart do not apply to a train operation controlled by a remote control operator as defined in § 229.5(a) of this chapter.

*Section 218.123 General Train Crew Staffing Requirements*

As proposed in the NPRM, this section sets forth the final rule's general requirement that trains be operated with a minimum of two crewmembers. This final rule substantially adopts paragraphs (a), (b), and (d) as proposed, but revises paragraph (c) to allow certain exceptions to the requirement for two crewmembers on trains transporting certain types and quantities of hazardous materials. Consistent with the edits made throughout this final rule, FRA is revising the reference to ''train crew staffing'' in the section heading and the heading for paragraph (b) to ''train crew size safety.'' These changes do not change the meaning and thus the analysis provided in the NPRM is applicable for paragraphs (a) and (b).

In the NPRM, paragraph (c) proposed to mandate, without exception or special approval eligibility, two crewmembers be assigned to trains transporting certain quantities and types of hazardous materials that have been determined to pose the highest risk for transportation from both a safety and security perspective. As explained in the discussion of comments and conclusions above, however, FRA determined that certain exceptions, including special approval eligibility, could be permitted while still allowing for safe operations. Those exceptions can be found in § 218.129(a)(1) and § 218.131(a)(2). The final rule retains the two-person requirements for trains transporting the same types and quantities of hazardous materials as was proposed in the NPRM when these exceptions do not apply. The final rule's requirements include a specific reference to a two-person train crew requirement for each high-hazard flammable train (HHFT) as defined in § 171.8 of this title when an exception does not apply. The requirement in paragraph (c)(2) of the final rule would cover HHFT as currently defined by PHMSA, and the requirement in (c)(1) will ensure HHFT will continue to be covered if PHMSA amends its current HHFT definition.

*Section 218.125 Specific Passenger and Tourist Train Operation Exceptions to Crew Size Safety Requirements*

This section, proposed as § 218.127 in the NPRM, addresses passenger and tourist train operations that are not subject to the rule's crew size safety requirements. Although this final rule adopts, in § 218.125, the general provisions of proposed § 218.127, FRA is making editorial revisions to the section heading and paragraph (a) along with adding a new paragraph (e) to this section addressing certain existing one-person train crew operations.

Specifically, consistent with the edits made throughout this final rule, FRA has revised the ''crew staffing'' reference in the section heading to ''crew size safety.'' FRA is also rephrasing paragraph (a) for ease of reading. As proposed, paragraph (a) identified passenger and tourist operations that would ''not require'' a minimum of two crewmembers. In this final rule, FRA is rephrasing paragraph (a) to affirmatively state that certain tourist and passenger

train operations ''may be'' operated with a one-person train crew. This change from the proposed rule is intended to remove any ambiguity regarding the type of operations that will be excepted through this section and does not change the section's meaning from that proposed. Thus, the analysis provided in the NPRM is applicable for paragraphs (a) through (d) of this section.[313]

A substantive change from the NPRM is the addition of paragraph (e), which provides an exception for existing passenger train operations with one-person train crews for which FRA has already approved the operation's required passenger train emergency preparedness plan under part 239.

*Section 218.127 Specific Freight Train Exceptions to Crew Size Safety Requirements*

Proposed as § 218.129 in the NPRM, this section addresses freight train exceptions to crew size safety requirements. Consistent with edits made elsewhere in this final rule, FRA has revised the section heading to refer to ''crew size safety,'' as opposed to ''crew staffing.'' FRA is also adding an introductory sentence to the section and moving the substance of proposed paragraph (b) to § 218.129.

As in the NPRM, paragraph (a) lists the requirements for an exception for a unit freight train when it is loading or unloading as part of a mine load-out, plant dumping, or similar operation. In this final rule, FRA is adopting paragraph (a) essentially as proposed, with the exception of removing the definition of ''unit freight train'' from the paragraph. As discussed above, in this final rule, the definition for that term is found in § 218.5. Further, because the proposed requirements for the ''mine load out'' exception in paragraph (a) were originally in one long paragraph, this final rule places equivalent requirements in a numbered list for ease of use (paragraphs (a)(1)–(5)). This formatting change does not affect the paragraph's meaning except for paragraph (a)(4), which does not contain the proposed requirement that a one-person train crewmember during mine load out, plant dumping, or similar operations must be prohibited from performing any duties that would require a second crewmember, as it instead specifies the duties that will be prohibited. Although the NPRM's analysis provided some examples of prohibited duties, FRA decided that greater clarity could be achieved by specifying the examples in the regulatory text, instead of mandating the more broadly stated proposed requirement. The prohibited duties are operation of a hand-operated switch, filling out paperwork, or calling out signal indications during the loading or unloading process. Otherwise, the analysis provided in the NPRM is applicable for this paragraph.[314]

FRA is not adopting paragraph (b) as proposed. Instead, FRA is reserving paragraph (b) of this section for future use and, as discussed in the analysis of § 218.129 below, has included some of the requirements and exceptions from proposed paragraph (b) in § 218.129.

*Section 218.129 Conditional Exceptions Based on Compliance Dates for Class II and III Legacy Freight Train Operations, Certain Other Class II and III Freight Railroad Train Operations, Work Train Operations, Helper Service Train Operations, and Lite Locomotive Train Operations Staffed With a One-Person Train Crew*

This section of the final rule consolidates various proposed requirements and exceptions to the two-person train crew mandate and, therefore, includes many of the same or similar requirements to those proposed in §§ 218.125, 218.129, and 218.131 of the NPRM. Consolidating these exceptions and requirements in this section makes the rule more concise, eliminating the need to repeat certain requirements shared by each of the exceptions as it did in the NPRM. However, because there were changes to the requirements for some of the proposed exceptions, FRA is not relying on the analysis in the NPRM for this section.

Paragraph (a) provides that a railroad is not required to comply with the requirements in this section for each one-person train crew operation that is governed by an exception in another section of this subpart. Thus, this section does not apply to the specific passenger and tourist train operation exceptions in § 218.125 or the specific freight train exceptions in § 218.127. The train operation exceptions described in this section that provide for a one-person train crew are listed in paragraph (a) along with the requirements that will apply depending on the exception, as discussed further below.

The purpose of paragraph (a)(1), which is based on the exception proposed in § 218.131 of the NPRM, is to provide a way for each Class II and III railroad to continue a legacy one-person train crew freight operation after the effective date of this final rule, while ensuring each railroad with such a legacy operation will have sufficient time to add any necessary, minimum safeguards to protect rail employees, the public, or the environment. FRA is defining a legacy one-person train crew freight operation as one that a railroad established at least two years before the effective date of this final rule. Pursuant to this exception, a legacy operation may continue transporting hazardous materials of the types or quantities specified in § 218.123(c) if the railroad can show it had such an established operation for at least two years before the effective date of the final rule. Although this notification requirement is not an approval process, compliance with the requirement is mandatory to use the legacy one-person train crew freight operation exception. In meeting the written notice requirements in paragraph (b) of this section, the railroad is required to provide the evidence necessary to establish the existence for at least two years of such a legacy one-person train crew freight operation. For example, in paragraph (b)(2), the final rule requires that the written notice include business records or other written documents supporting the legacy operation was established for at least two years before the rule's effective date. For a railroad to have an operation ''established at least two years before,'' FRA means that during that two-year period, an operation must have occurred at regular intervals under a set of defined procedures or conditions. It will be acceptable if a railroad's evidence for the one-person train crew operation shows that the railroad occasionally substituted a multi-person train crew; yet, FRA expects the evidence will show the railroad typically used the one-person train crew where circumstances allowed for the one-person operation. If a railroad did not conduct one-person train crew operations regularly, even where circumstances allowed, the existence of a legacy operation will likely not be considered established, and the railroad will need to consider whether another exception will be applicable or whether it will request special approval. Similarly, if a railroad cannot establish that its legacy one-person train crew freight operation was transporting hazardous materials of the types or quantities specified in § 218.123(c), it will not be permitted to initiate such an operation under this exception and must consider whether another exception will be applicable or whether it will request special approval.

[313] 87 FR 45590–91.

[314] 87 FR 45591–92.

Paragraph (a)(1)(i) prohibits a Class II or III railroad from continuing a legacy one-person train crew freight operation beyond 90 days after the effective date of this final rule if the railroad fails to provide FRA with written notice meeting the requirements in paragraph (b). Hence, each railroad that established a legacy one-person train crew freight operation for at least two years before the effective date of this final rule would need to decide whether it wants to continue the operation beyond 90 days after the effective date of this final rule; if it does, the railroad will be required to provide FRA with written notice meeting the requirements in paragraph (b), unless the operation is covered under one of the exceptions in §§ 218.125 or 218.127.

For those legacy one-person train crew freight operations that provide FRA with written notice meeting the requirements in paragraph (b), the railroad will be permitted to continue the operation beyond 90 days after the effective date of the final rule if the railroad also complies with the additional requirements in paragraphs (c)(1) and (2) of this section. For these legacy one-person train crew freight operations, FRA will permit a railroad to phase in the additional requirements in paragraph (c). A railroad with such a legacy operation that does not implement all the additional requirements by each deadline will not be permitted to continue the operation. Further, a railroad that allows its legacy operation to lapse at one of the deadlines will not be permitted to utilize this exception if it wants to restore that legacy operation at a later date.

Paragraph (a)(2) will permit each Class II and III freight railroad an opportunity to initiate a train operation with a one-person crew under certain conditions. The operations under this exception will be limited to a train that will not be transporting hazardous materials of the types or quantities specified in § 218.123(c). Under paragraph (a)(2)(i), this exception will require that a railroad, before commencing the operation, provide FRA with written notice that contains the information required by paragraph (b) of this section. Under paragraph (a)(2)(ii), this exception will require a railroad to comply with the additional requirements in paragraph (c) of this section without a phase-in of compliance dates for those additional requirements. FRA determined that the initiation of a new one-person train crew operation without an FRA review process should, at a minimum, have already implemented the additional requirements in paragraph (c) of this section, which will allow the railroad to begin the operation with significant safeguards already in place. In contrast, the other exceptions in paragraph (a) are largely directed for existing operations that are already in wide use and, thus, requiring immediate implementation upon the effective date of the final rule for those other exceptions would have the potential to be disruptive to normal railroad operations.

Thus, to meet the requirements of this exception in paragraph (a)(2), a railroad's one-person train crew operation will be required to use a locomotive equipped with alerters and comply with any required operating rules in paragraph (c) from the first day these operations are initiated. While this exception is based on the small railroad operations exception in proposed § 218.129(c)(1) for a freight railroad with fewer than 400,000 total employee work hours annually, the exception in this final rule has been expanded to include more railroads, and it does not include the speed, grade, and train length requirements proposed in the NPRM.

Paragraph (a)(3), which is based on proposed § 218.129(c)(2), specifies the requirements for a work train exception to the two-person train crew mandate. The exception applies to work train operations regardless of whether they are existing or new operations. Each railroad may use a work train with a one-person train crew, including when a work train is traveling to or from a work site, as long as the railroad complies with the additional requirements in paragraph (c) according to the implementation schedule specified. Paragraph (a)(3)(i) limits the work train operation exception to non-revenue service trains that do not exceed 4,000 trailing tons and are used for the administration and upkeep service of the railroad. This work train requirement, which is the same as the proposed requirement, is based on the definition used in 49 CFR 232.407(a)(4) concerning requiring end-of-train devices; and, as in that rule, the 4,000 trailing tons or less threshold will provide railroads operational flexibility, especially smaller railroads.[315] Work trains mainly haul materials and equipment used to build or maintain the right-of-way and signal systems. Work trains are unlikely to be hauling hazardous materials (unless extra fuel is needed to power machinery) and, because they operate under their own set of safety rules, typically at low speeds or restricted speed, they pose fewer risks than long-haul trains. They often travel at restricted speed, which is a slow speed at which the locomotive engineer must be prepared to stop before colliding with on-track equipment or running through misaligned switches. For one-person train crew work train operations, FRA will permit a railroad to phase in the additional requirements in paragraph (c) of this section based on the implementation schedule provided.

Paragraph (a)(4), which is based on proposed § 218.125(a), specifies the requirements for a helper service train operation exception to the two-person train crew mandate. The exception applies to helper service train operations regardless of whether they are existing or new operations. Each railroad will be able to consider using a helper service train with a one-person train crew, including when a helper service train is traveling to or from a work site, as long as certain requirements are met. The definition for a ''helper service train operation'' in the definitions section of this final rule, § 218.5, means the train is a locomotive or group of locomotives being used to assist another train that has incurred mechanical failure or lacks sufficient tractive force necessary to traverse a particular section of track due to train tonnage and the grade of the terrain. Helper service is a common service performed in the railroad industry as a one-person operation. It is typically not considered a complex operation, and FRA does not expect this type of operation will pose a significant risk to railroad employees, the public, or the environment. As with each of these exceptions, a railroad may decide that a certain helper service train operation is complex and that more than one crewmember should be assigned to the operation. Moreover, FRA notes that, while the helper locomotive itself may be operated with a one-person train crew, the train it is helping may be required to have a two-person crew, and the fact that a helper locomotive is assisting would not impact the number of crewmembers required for the train. For one-person train crew helper service operations, FRA will permit a railroad to phase in the additional requirements in paragraph (c) according to the implementation schedule specified.

Paragraph (a)(5), which is based on proposed § 218.125(b), provides an exception from the two-person crew requirement for an existing or new lite locomotive train operation. Similar to the safety rationale for the helper service exception, when a locomotive or a consist of locomotives is not attached to any piece of equipment, or attached only to a caboose, there is not a

[315] 62 FR 278, 282 (Jan. 2, 1997).

significant risk to railroad employees, the public, or the environment. Lite locomotive train operations are mainly used to move locomotives to a location where the locomotives can be better utilized for revenue trains that are taking or delivering rail cars to customers, or to other railroad yards where the locomotives can be used in switching operations. Additionally, lite locomotives may be operating as a train to take more than one locomotive to a repair shop for servicing. The definition of ''lite locomotive train operation'' is consistent with the definition of ''lite locomotive'' in 49 CFR 229.5 of FRA's Railroad Locomotive Safety Standards. However, the exception for a lite locomotive train operation in this final rule includes a further clarification that ''excludes an MU locomotive operation.'' The reason for this additional clarification is that an MU locomotive is both a locomotive and a car that can transport passengers, and this exception will not cover a passenger train operation containing either single or multiple MU locomotives. FRA has further clarified the MU locomotive exceptions for passenger trains in § 218.125(c). For one-person train crew lite locomotive train operations, FRA permits a railroad to phase in the additional requirements in paragraph (c) according to the implementation schedule specified.

Paragraph (b) contains a list of the minimum written notice requirements for those operational exceptions in paragraph (a) that require it, *i.e.,* the exceptions for a Class II or III railroad's legacy one-person train crew freight operation and for the Class II or III freight railroad that wants to initiate a train operation staffed with a one-person train crew that is not transporting hazardous materials of the types or quantities specified in § 218.123(c). This notice requirement is based on the proposed special approval petition requirements in the NPRM for requesting either the continuance of a legacy one-person train operation in proposed § 218.131(b) or for requesting the initiation of train operations with fewer than two crewmembers in proposed § 218.133(b). The written notice requirements in this final rule will require each railroad that will be using one of these exceptions to provide FRA, by email, with largely the same information as the NPRM proposed for these operations, while eliminating the proposed special approval process. While the written notice requirements, in lieu of a special approval requirement that includes a risk assessment, will substantially lessen a railroad's burden when compared to the NPRM's proposed requirements for a special approval, FRA notes that, for compliance, a railroad's written notice must provide complete and accurate information.

Paragraph (b)(1) requires information about the primary person at the railroad who can be contacted about the petition for a special approval. The remaining 13 numbered items listed under paragraph (b) require an accurate description of the operation, the hazards present, the mitigating measures taken to improve safety, and the railroad's description of how it determined the operation was safe to implement.

For a railroad required to meet the written notice requirements, paragraph (b)(2) requires the railroad to identify the location of the operation with as much specificity as can be provided as to the characteristics of the geographic area through which the trains will operate (*e.g.,* population density and proximity to environmentally sensitive areas), the terrain over which the trains will be operated, industries or communities served, and track segments, territories, divisions, or subdivisions operated over. In addition, each Class II or III railroad with a legacy one-person train crew freight operation will also need to include business records or other written documents as part of the written notice submission to show that the legacy operation was established for at least the two years before the effective date of this final rule. For example, documentation could show that a railroad established a legacy one-person train crew freight operation running 3 days per week for 5 years without incident. That kind of information would show the extent of the operation and the safety record. Further, such a legacy operation must identify the current parameters of the operation's location and should not expand the parameters based on plans for future expansion, as doing so would be initiating a new operation. FRA expects that a Class III railroad is likely to describe its legacy operation as covering the entire railroad but also expects some short lines to describe an operation covering only a portion of its railroad. In comparison, FRA would expect a larger Class II regional railroad to describe an operation that covers only a portion of the railroad as it might find only some aspects of their entire operation were conducive to one-person train crews. A railroad that cannot provide records kept in the normal course of business to support a legacy operation can consider submitting affidavits from the railroad's employees, supervisors or managers, or others, in support of the existence and extent of the one-person train crew operation.

Paragraphs (b)(3) through (7) and (10) are sufficiently descriptive that further analysis is generally unnecessary here. However, some information that was not proposed in the NPRM has been added to develop more fully the overall description of the one-person train crew operation. Notably, paragraph (b)(3) specifies that the description of track, signal and train control systems, and devices and appliances must also include a list of all active and passive highway-rail grade crossings, including crossing numbers. The addition of this list should be easy to provide as it should be available to train crews in timetables, track charts, or other easily reproduced documents. For paragraph (b)(7), in addition to any maximum number of cars and tonnage set for the operation, FRA included a requirement to provide the number and frequency of the trains involved to help fill out the description of the operation from both a historical perspective and a frequency of risk view. The information required in the written notice will permit FRA to identify these operations and evaluate how well each railroad has addressed the hazards and risk of the operation.

Paragraph (b)(8) will require a railroad to state in its written notice whether the one-person train crew operation hauls hazardous materials of any quantity or type, and the approximate percentage of carload traffic in the one-person train crew operation that involves hazardous materials. A one-person train crew operation that does not haul hazardous materials would present less risk than one that does, all else being equal. FRA will require a railroad to approximate the percentage of carload traffic in the one-person train crew operation that is hazardous materials in its written notice, as each railroad should be considering it as a factor in its business decision to deploy such an operation under the exceptions to a minimum two-person train crew mandate. Considering other issues related to the operation's size and scope and understanding the quantity and type of hazardous materials hauled will help FRA evaluate the risks posed by an excepted operation that is required to file written notice.

Paragraph (b)(9) will require each railroad that must file written notice to include information about whether the railroad places any limitations on a person operating as a one-person train crew. FRA expects that some railroads will limit a one-person train crew by establishing a maximum number of miles or hours the person may work during a single tour of duty. It is also

possible that a railroad will establish a fatigue mitigation plan voluntarily and other railroads will establish such a plan because a Federal requirement specifies that they do so.[316] Although this final rule does not require a fatigue mitigation plan, the written notice requirement will allow FRA to consider this additional information when evaluating how each railroad will implement strategies for reducing railroad worker fatigue, such as improving the predictability of schedules, considering the time of day the railroad permits one-person train crews to operate, and educating workers about fatigue and sleep disorders. This information may also permit FRA to revisit these types of concerns and compare mitigating actions across the industry.

Paragraph (b)(11) will require a detailed description of any technology that is used to perform tasks typically performed by a second crewmember or that prevents or mitigates the consequences of accidents or incidents. The technologies described must be already installed and operational, with all FRA approvals as necessary, so that the functionality and impact of the technology on the operation is understood and can be effectively communicated to FRA.

Paragraph (b)(12) will require that the railroad's mandatory notice include a copy of any railroad rule or practice that applies to the one-person train crew operation but does not apply to train crew operations with two or more crewmembers. Receiving this information will assist FRA in evaluating the safeguards each railroad has voluntarily implemented and to evaluate future effectiveness of these types of rules or practices.

Paragraph (b)(13) will require each Class II or III railroad, seeking to continue a legacy freight train operation staffed with a one-person train crew, to include with its written notice five (5) years of the accident and incident data required by part 225 of this chapter, for the operation identified and that the railroad can attribute to a one-person train crew operation. If the operation was established between two to five years before the effective date of the final rule, then the railroad will provide the accident and incident data for the operation from the date the operation was established. Although current regulations require the railroad to report certain ''accidents/incidents'' [317] to FRA, FRA cannot accurately determine from that reported information which, if any, reportable accidents/incidents are attributable to a railroad's one-person train crew operation. FRA expects that each railroad will have more information about its own accidents/incidents and can identify the data that applies to its legacy operation. The railroad must narrow the requested data to the location of the legacy operation that the railroad has identified in its written notice and only send additional accident/incident data that pertains to the legacy operation subject to the railroad's written notice.

Paragraph (b)(14) is a catch-all provision that permits a railroad filing a written notice to submit any other information describing protections that are or will be implemented to support the safety of the one-person train crew operation that the railroad wants to share with FRA to justify the safety of the operation. FRA expects that some railroads would have completed a risk assessment, a safety analysis, or compiled a safety data report before implementing a one-person train crew operation and that the railroad will share that information to show FRA how the hazards were, and will continue to be, mitigated, so that operation is as safe or safer than a two-person minimum train crew operation.

Paragraph (c) contains a list of requirements that apply to all five exceptions described in paragraph (a). FRA encourages each railroad to implement these additional requirements as quickly as possible, consistent with the implementation schedule in this final rule that phases in requirements for some of the operational exceptions to the two-person train crew mandate. Compliance with the adoption of operating rules that ensure mitigation measures for certain safety-critical situations specified, establish radio or wireless communications with a one-person train crew that is as safe or safer than a two-person train crew for train operations and crewmember safety, and require that a one-person train crew's controlling locomotive is equipped with a functioning and tested alerter will improve the immediate safety of the operation. The establishment of an implementation schedule for the four exceptions covering some existing operations will allow these operations time to, as necessary, install alerters, adopt operating rules, and/or hire and qualify additional train crewmembers.

Paragraph (c) permits FRA to enforce a violation of an operating rule required under this paragraph in the same way as if the person violated the requirements of this section directly. The paragraph clarifies that a ''person'' will not be limited to a railroad employee, and may include each railroad, railroad officer, or supervisor. Contractors that act in any of those capacities will also be considered a person subject to FRA's jurisdiction.

Paragraphs (c)(1) and (2) require each railroad with an applicable one-person train crew operation to adopt and comply with operating rules that cover certain safety concerns. These additional requirements for the adoption of minimum operating rules are mostly based on the proposed requirements in the NPRM for requesting either the continuance of a legacy one-person train operation in proposed § 218.131(b)(12) and (13) or the initiation of train operations with fewer than two crewmembers in proposed § 218.133(b)(12) and (13).[318]

Similar to the proposal in the NPRM, paragraph (c)(1)(i) requires a railroad with a one-person train crew operation to adopt and comply with operating rules that address: (A) a release of any hazardous material; (B) any accident/incident regardless of whether it is reportable to FRA under part 225; (C) a request from an emergency responder to unblock a highway-rail grade crossing in response to a potentially life-threatening situation; (D) a train or on-track equipment derailment; (E) a disabled train; and (F) an illness, injury, or other incapacitation of the one-person train crewmember. This requirement will ensure that each railroad with a one-person train crew operation has operating rules specifying how the railroad will respond to these types of events and therefore will be prepared to take mitigating measures knowing that a second crewmember will not be traveling on the train and available to assist in a response. Although similar to the proposal in the NPRM, the various operating rule requirements that applied only to the proposed continuance of legacy train operations staffed with a one-person crew or for the initiation of train operations staffed with fewer than two crewmembers raise broadly applicable safety concerns for almost all one-person train crew operations; therefore, FRA determined these requirements are necessary for all the exceptions permitted by this section, not only the ones similar to the requirements as proposed in the NPRM.

[316] 87 FR 35660 (June 13, 2022) (publishing a final rule on ''Fatigue Risk Management Programs for Certain Passenger and Freight Railroads'' effective July 13, 2022, and codified in 49 CFR part 270, subpart E and 49 CFR part 271, subpart G).

[317] 49 CFR 225.5 (defining four different types of accidents or incidents).

[318] 87 FR at 45617–19 (citing proposed exceptions under §§ 218.127 through 218.131).

The requirement that the operating rule address a disabled train does not depend on the cause, which could include a track washout or other severe weather event, mechanical breakdown, accident, or other circumstances that prevent the train from moving. In some circumstances, a significant operational issue could disable a one-person crew's train (*e.g.,* if the one crewmember's hours of service expired, and the railroad has not adequately prepared to retrieve and replace the crewmember).[319] A one-person train crew could also be considered disabled from an operational view if the railroad assigns a one-person crewmember that is unqualified to operate over the territory assigned and the crewmember is not provided with a qualified pilot. In that circumstance, the one-person train crewmember might not be able to move the train or might be operationally limited in how the train can be moved thereby equating to a disabled train situation caused by physical breakdowns in equipment, track, or signal systems. A railroad would not have to adopt or comply with an operating rule to address operational delays typical of normal railroad operations, such as one train waiting in a siding for another to pass, as that operational activity would not be considered disabling the train; FRA expects that each railroad is trying to optimize its performance and would avoid unnecessary operational delays whenever possible.

In addition to addressing disabled trains, this final rule requires that the railroad's operating rule address, at a minimum, several other types of situations. For instance, the operating rule must address an accidental or non-accidental release of any hazardous material. This means that any release of a hazardous material must be covered whether caused by a train collision or a non-accidental release (*e.g.,* a release caused by an offeror not properly preparing a shipment for transportation). All derailments, accidents, and incidents must also be addressed by operating rule. In addition, a railroad's operating rule must also address requests from an emergency responder to unblock a highway-rail grade crossing in response to a potentially life-threatening situation.

Further, as required by paragraph (c)(1)(i)(F), the operating rule will need to include mitigation measures to ensure the safety of the one-person train crewmember will be addressed in case of illness, injury, or another incapacitation. The communication requirements specified in paragraph (c)(2), and discussed below, will help each railroad with a one-person train crew operation to keep in close communication with a one-person train crewmember and, under this requirement, the railroad will need to specify who will act and how, and plan out how fast the reaction times will be to ensure the crewmember's safety.

Paragraph (c)(1)(i) lists the types of situations that each affected railroad must address. The situations listed could involve responses requiring protocols for mitigation measures because each situation may include potential harm to rail employees, the public, or the environment. It is fundamental to rail safety that each railroad have an unambiguous operating rule addressing such mitigation measures and that by doing so the railroad will demonstrate that it will be prepared to respond as quickly as it would if the train were crewed with a two-person crew. All of the situations listed are foreseeable events on a railroad (and a railroad should in any case seek to prevent, and mitigate the impact of, such situations). All railroad employees and supervisors must have clearly described roles and responsibilities, and all logistics involved and expected response times must be clearly described. The reasonableness of the logistics and expected response times of each operation will depend on the scope of the operation and the potential impact on the public.

Paragraph (c)(2) requires that each railroad have an operating rule to ensure radio or wireless communications with a one-person train crew can provide a level of safety for train operations and crewmember safety that is as safe or safer than a two-person train crew. The paragraph specifies that the required operating rule must cover four safety concerns: (i) the one-person train crew must have a working radio or working wireless communications on the controlling locomotive appropriate for railroad communications to cover those operations, even if the railroad is not otherwise required to supply them; [320] (ii) the train dispatcher or operator must confirm with the one-person train crewmember that the train is stopped before conveying a mandatory directive; (iii) whenever a one-person train crewmember can anticipate that radio or wireless communication will be lost, *e.g.,* when entering a tunnel, unless a railroad will monitor the train's real-time progress, the crewmember must contact another person who would be expected to act if communication is lost longer than what is specified by the operating rule; [321] and (4) the railroad must establish procedures for when to initiate search-and-rescue operations if all radio or wireless communication is lost with a one-person train crewmember because the safety of the one-person train crewmember is always a fundamental safety concern that a railroad can plan for and address in an operating rule.

Paragraph (c)(3) requires each railroad with an applicable one-person train crew operation to equip the operation's controlling locomotive with a functioning alerter that is operating as intended and requires that a one-person train crewmember test the alerter to confirm it is working before departure from each initial terminal, or prior to being coupled as the lead locomotive in a locomotive consist. This requirement is therefore consistent with requirements in § 229.140 of this chapter for ensuring that an alerter is functioning and operating as intended. Class I and II railroads that generally have newer locomotives, placed into service on or after June 10, 2013, or permit the controlling locomotives to operate at speeds in excess of 25 mph, will already have locomotives with installed alerters that comply with FRA's requirements; thus, the issue of adding an alerter and operating rules that address the safety of that alerter will largely be an issue for Class III railroads whose locomotives may lack such an alerter or have an older style of alerter installed.[322] That is, FRA is aware that some Class II and III freight railroads have alerters that do not meet, and are excepted from, these requirements. FRA also recognizes it may be less expensive to install a basic alerter that lacks all the functions of an alerter meeting FRA's current requirements. To address this issue, FRA will allow each railroad that limits the one-person train crew's operation to a maximum authorized speed of 25 mph to use a locomotive alerter that does not otherwise meet the requirements for alerters in § 229.140, if the alerter has a manual reset and will result in a penalty brake application that brings the locomotive or train to a stop if not properly acknowledged. Of course, if

[319] 87 FR at 45597.

[320] Although not a requirement, FRA encourages each railroad to provide a redundant electronic device when possible, as FRA's requirement is only a safety minimum.

[321] The person who would receive such a communication would typically be a dispatcher. However, for railroads that do not use dispatchers, the person might be a supervisor or manager, an intermittently assisting crewmember, or another railroad employee.

[322] 49 CFR 229.140(a).

the railroad is required to have an alerter that complies with § 229.140, this provision does not provide an alternative to that existing requirement.

*Section 218.131 Special Approval Petition Requirements for Train Operations Staffed With a One-Person Train Crew*

This section, which is based on proposed § 218.133, has a modified section heading to clarify that the section's requirements regarding the special approval petition will cover all special approval petition requirements, thus including requirements for both the initiation of new operations and potentially the continuation of some existing operations that are not otherwise exempted; on this issue, the proposed section was limited to the special approval petition requirements for only the initiation of train operations staffed with fewer than two crewmembers. Also, as changed in other sections, the ''fewer than two crewmembers'' phrase has been replaced for clarity with ''a one-person train crew,'' as this final rule only addresses one-person train crew operations and does not apply to autonomous operations.

Similar to the NPRM, paragraph (a)(1) prohibits a railroad from operating a train with a one-person train crew unless it receives special approval for the operation as required by this subpart or the operation complies with one of the exceptions specified in §§ 218.125 through 218.129. This paragraph has an option that will allow a railroad with an existing operation that is not otherwise excepted to continue that operation in the interim period before it receives FRA's decision on a special approval petition. For example, this option would apply to a Class II or III railroad's existing one-person train crew freight operation transporting hazardous materials of the types or quantities specified in § 218.123(c) that was initiated less than two years before the effective date of the final rule (and therefore does not qualify for the legacy operation exception in § 218.129(a)(1)). As provided in paragraph (a)(2), there are three conditions for continuing that operation during this interim period before FRA decides on the special approval. First, the railroad must submit a written notice by email to FRA no later than 15 days after the effective date of the final rule. The written notice must include a summary of the railroad's operation, which is not expected to be as thorough as the description provided with the special approval petition that will be filed later. The written notice must also include the contact information for the railroad's primary point of contact on the operation. Second, FRA may identify existing safety hazards with any aspect of the one-person train crew operation and will coordinate with the railroad about such safety hazards that are required to be corrected, could be readily mitigated, or otherwise should be addressed. For example, if FRA finds that the operation is occurring over track or with rolling equipment that does not meet existing Federal standards, the railroad will need to coordinate with FRA on remedial action to redress the problems and to provide assurances that the railroad will prevent future occurrences. Similarly, although a railroad will address safety hazards in the risk assessment submitted as part of a special approval petition, FRA will examine the existing operation for safety concerns to ensure such concerns are addressed to protect the safety of the one-person train crewmember or the communities that the trains pass through. Third, the railroad must submit its special approval petition meeting all the requirements for such a petition no later than 60 days after the effective date of the final rule. This deadline is necessary so that the review and decision-making process for these operations of less than two years can be processed quickly. As a practical matter, during the interim 60-day period from the effective date of the rule until the special approval petition deadline, a railroad may consider changing its one-person train crew operation to avoid having to submit a special approval petition by adding a second crewmember or changing aspects of the operation so that the operation otherwise complies with this final rule; in such circumstances, the railroad would no longer need to avail itself of this option. Because the final rule expressly permits a railroad to continue the operation in accordance with the requirements in this section ''pending FRA's decision on the railroad's special approval petition,'' if FRA requires additional information or requests modifications after receiving the petition, the railroad will have the discretion to continue the operation until FRA issues a decision on the petition.

As discussed in the response to comments above, paragraph (a)(3) has been added to the final rule. Each freight railroad seeking to either initiate or continue a train operation with a one-person train crew that may transport hazardous materials of the types or quantities specified in § 218.123(c) is required to receive FRA's special approval for the operation and to comply with the requirements in § 218.129(c). The paragraph thus requires those operations to have operating rules that address taking mitigation measures under specified situations, operating rules addressing the communication and safety concerns associated with a one-person train crew operation, and operating rules requiring a one-person train crew's controlling locomotive to be equipped with a functioning alerter and the testing of that alerter to determine it is functioning, in addition to requiring a special approval petition that includes a risk assessment.

Paragraph (a)(4) was originally proposed as § 218.133(a)(2), and the requirements are the same as proposed. Accordingly, the analysis provided in the NPRM is applicable for this paragraph.[323]

Paragraph (b), which is based on proposed § 218.133(b), contains the minimum petition requirements for a railroad to request FRA's special approval to initiate a train operation with a one-person train crew that is not otherwise permitted by one of the exceptions. FRA expects that a petition meeting these minimum requirements will contain sufficient information for FRA to issue a decision. In the NPRM, FRA stated that it would determine whether approving the petition operation is ''consistent with railroad safety.'' In this final rule, FRA will be determining whether approving the operation described in the petition is ''as safe or safer'' than a two-person train crew operation. The reason for changing the standard to ''as safe or safer'' is to coincide with the risk assessment that a railroad must include as part of its petition. In the risk assessment, a railroad will compare the risks associated with the one-person train crew operation to those associated with the operation if it were performed by a two-person train crew. Accordingly, FRA will approve a petition for a one-person train crew operation only where the risk assessment shows that it will be as safe or safer than a two-person train crew operation.

Where the requirements in paragraph (b) are substantively different than proposed, this analysis will address those differences.[324] Otherwise, because the changes from the proposed rule will not change the paragraph's meaning, the

[323] 87 FR 45597.

[324] FRA notes that it did not adopt proposed paragraph § 218.133(b)(14) in this final rule.

analysis provided in the NPRM is applicable for this final rule.[325]

Paragraph (b)(8) will require a railroad to state in its petition for special approval whether the railroad is seeking approval to transport hazardous materials of any quantity and type. The term ''hazardous materials'' is defined by PHMSA in 49 CFR 171.8. The final rule differs from the NPRM in that it contains the additional requirement that a railroad answer whether it is transporting hazardous materials listed in § 218.123(c), because those are the materials identified as posing the greatest safety and security risks in transportation.

Paragraph (b)(13) requires a railroad to submit with a special approval petition a copy of a railroad operating rule that will apply to the proposed train operation(s) with a one-person train crew, and which complies with the requirements of § 218.129(c)(1) to ensure rail employees can take mitigation measures that provide a level of safety that is as safe or safer than a two-person train crew operation to address certain situations with the one-person train crew operation. In the NPRM, FRA described a disabled-train/post-accident protocol, which largely proposed the same requirement as in this final rule. The final rule provides clarity to the types of situations that will be required to be addressed in such an operating rule. The final rule also will require the same operating rule for an exception to the two-person train crew mandate under § 218.129(c)(1) as it will for an exception permitted by special approval under this section. As proposed in the NPRM, the final rule will also permit a passenger train operation, with an approved emergency preparedness plan under part 239, to omit this requirement as duplicative.

Paragraph (c) did not change from the NPRM and provides railroads notice that FRA may request any additional information, beyond what the railroad provided in the petition.

*Section 218.133 Risk Assessment Content and Procedures*

This section, which was proposed as § 218.135, contains the minimum requirements for a railroad's risk assessment under this subpart. As stated in the NPRM, the goal of a risk assessment is to assess risk in an objective manner by following a decision-making process designed to systematically identify hazards, assess the degree of risk associated with those hazards, and based on those assessed risks, identify and implement measures to minimize or mitigate the risks to an acceptable level. For this rule, a risk assessment is the process of determining, either quantitatively or qualitatively, or both, whether the level of risk associated with a proposed one-person train operation, when mitigated, is as safe or safer than the same operation operated with a two-person crew minimum.

In this final rule, FRA has modified the risk assessment process and standard from the NPRM for several reasons described above in the discussion of comments and conclusions and further summarized here. The overall approach was to remove proposed requirements that might be viewed as difficult to meet and to provide railroads with more flexibility in adopting a risk assessment approach. One major difference from the NPRM led FRA to revisit aspects of the proposed quantitative risk-based hazard analysis and move it to appendix E, where it has been identified as one risk assessment approach. Although some commenters objected to the proposed version of this approach, FRA is retaining the overall approach in the rule, so it is readily available to those railroads who may want to apply an objective approach that is already approved by FRA. Similarly, FRA is also addressing the concerns raised relating to a quantitative assessment that calculates a mean time to hazardous event, noting that not all railroads may have the historical safety data to perform the calculations required in the NPRM with the level of statistical confidence. Addressing the issue of flexibility in adopting an approach, the risk-based hazard analysis in the final rule provides for a comparison, allowing for a qualitative approach as well as a quantitative approach, including use of both approaches in the overall analysis. These changes are consistent with the system safety program and risk reduction program rules, which require a risk-based hazard analysis as part of the risk-based hazard management program. Providing for use of a similar form of analysis will help address concerns regarding the complexity and burden of the risk assessment.

Paragraph (a) of this section sets the minimum standards for the risk assessment's content and analysis requirements while paragraph (b) allows a railroad to use alternative risk assessment methodologies and/or procedures if approved by the Associate Administrator for Safety.

Paragraphs (a)(1) through (4) require a railroad's risk assessment to contain: (1) a complete description of the proposed operating environment, including a list and description of all functions, duties, and tasks associated with the operation of a train as proposed, performed by the one-person train crewmember, other railroad employee(s), or equipment; (2) a description of the allocation of all functions, duties, and tasks to the one-person train crewmember, other railroad employee(s), or equipment; (3) a risk-based hazard analysis for the proposed train operation's functions, duties and tasks that will identify new hazards, changes to existing hazards and/or changes to the risk of an existing hazard associated with the proposed train operation, as compared to a two-person minimum train crew operation, and then once mitigated, demonstrate that the proposed operation is as safe or safer than a train operation with a two-person minimum train crew; and (4) a mitigation plan that documents the design and implementation timeline of the sustained mitigation strategies to eliminate or reduce the overall risk to a level such that the one-person train crew operation is as safe or safer than a two-person minimum train crew operation considering mitigation design and human factors, at a minimum.

Using the information gathered in response to paragraphs (a)(1) and (2), paragraph (a)(3) requires a railroad to complete a risk-based hazard analysis that involves multiple steps. The first step, under paragraph (a)(3)(i), will be to identify any new hazards, changes to existing hazards, and/or changes to the risk of an existing hazard associated with the proposed one-person train operation, as compared a two-person minimum train crew operation. A ''hazard,'' as defined in § 218.5, is an existing or potential condition that can lead to an unplanned event or series of events (*i.e.,* mishap) that can cause an accident or incident; injury, illness, or death; damage to or loss of a system, equipment, or property; or environmental damage. Identifying relevant hazards and preparing a hazard analysis are fundamental to the process of assessing risk. This hazard analysis must take account of all aspects of the railroad's system, including at a minimum infrastructure, equipment, technology, work schedules, mode of operation, operating rules and practices, training and other areas impacting railroad safety. As mentioned with regard to paragraph (a)(1), the operating environment, as documented in the special approval petition as required by § 218.131(b), must also be considered as part of the hazard analysis. Next, under paragraph (a)(3)(ii), each risk associated with the new or changed hazard must be evaluated, either qualitatively or

[325] 87 FR 45597–98.

quantitatively, or both, in terms of the severity and likelihood of a mishap. The third step, under paragraph (a)(3)(iii), will be to identify mitigations that will be put in place to minimize or eliminate any new or changed hazard or any change to the risk of a hazard, and then recalculate in terms of severity and likelihood the risk of a mishap. The fourth and final step, under paragraph (a)(3)(iv), will require the railroad to provide a statement with supporting evidence that the one-person train crew operation with a fully implemented mitigation plan, is as safe or safer than a two-person minimum operation.

The alternative standard in paragraph (b) has the same meaning as the requirement proposed in § 218.135(b), with the only change from the proposal being that the term ''Associate Administrator'' is clarified as the ''Associate Administrator for Safety.'' Thus, the analysis for this paragraph in the NRPM applies the same.[326]

*Section 218.135 Special Approval Procedure*

Other than deleting some cross-references and updating the standard for a petition approval (*i.e.,* as safe or safer), this section is unchanged from proposed § 218.137. Paragraph (e) contains the same requirements as in the proposed rule, except that the final rule organized the requirements in a chronological order. Thus, the analysis provided in the NPRM is applicable for this section.[327] FRA encourages railroads to approach FRA should they have any questions or concerns about demonstrating compliance with the requirements for train operations staffed with a one-person crew.

*Section 218.137 Annual Railroad Responsibilities After Receipt of Special Approval*

In the NPRM, this section was proposed as § 218.139. The changes from the proposed rule are consistent with other changes made in the final rule, and the section's meaning has not changed. Thus, the analysis provided in the NPRM is applicable for this section.[328] The following explanation provides additional information for clarity.

Paragraph (a) requires each railroad that receives special approval to use an operation with a one-person train crew under this subpart to conduct a formal review and analysis each calendar year, of the one-person train crew operation, and report to FRA its findings and conclusions from its review no later than March 31 of the following year by email. The final rule clarifies that the review and analysis that will be required is the annual report and that the requirements in paragraphs (b) and (c) of this section describe the components of a railroad's annual report. Because, unlike the proposal in the NPRM, the final rule will not require special approval for certain existing passenger and freight train operations staffed with a one-person train crew, this section does not contain citations or references that include such operations as requiring an annual report.

Paragraph (b)(1)(ix) was changed from the proposed requirement to provide clarity. In the NPRM, the proposed requirement would have required a railroad to report the total number of instances where a person certified as both a locomotive engineer and conductor had a certification revoked for violation of an operating rule or practice that occurred when the person was in an FRA-approved train operation with fewer than two crewmembers. In this final rule, a railroad will be required to report the total number of instances where a one-person train crewmember had a certification revoked for violation of an operating rule or practice that occurred when the person was operating a one-person train crew operation that received special approval under this subpart. The change from the proposed rule will clarify that the annual report will require inclusion of revocations of a locomotive engineer or conductor's certification of the one-person train crewmember. The final rule defines the ''one-person train crewmember'' to mean the single assigned person who is performing the duty of the locomotive engineer and is traveling in the operating cab of the controlling locomotive when the train is moving as part of a one-person train crew in § 218.5. Thus, the final rule clarifies that a one-person train crewmember can be a locomotive engineer alone and does not also need to be the train's assigned conductor. The final rule also clarifies that the annual report must capture the total number of instances where a one-person train crewmember's locomotive engineer or conductor certification is revoked for a violation of an operating rule or practice that occurred when the person was operating a one-person train crew operation receiving special approval under this subpart, and subtotals for each type of certification revoked; *i.e.,* whether it is a locomotive engineer or conductor certification revocation.

*Appendix E to Part 218—Recommended Procedures for Conducting Risk Assessments*

This appendix provides a quantitative risk-based hazard analysis methodology that may be used to meeting the requirements of § 218.133(a)(3) and is based upon the proposed requirements in § 218.135 of the NPRM. It provides one acceptable approach that may be used by a railroad to prepare a risk-based hazard analysis, which is part of the risk assessment required by § 218.133. A railroad that is required to obtain FRA's special approval under § 218.135 and complete a risk assessment may adopt this approach. A railroad that decides to modify this approach or to use a completely different approach is required to petition FRA for approval under § 218.133(b).

The recommended and acceptable approach is a quantitative risk-based hazard analysis. A hazard analysis is performed to identify new or changed hazards relating to the operation of a one-person train crew, as compared to a two-person minimum train crew operation, for purposes of eliminating, or at least mitigating, those hazards, thus ensuring that the operation by a one-person train crew is as safe or safer than that operating by a two-person crew. Paragraph (a) describes the first step as identifying all new hazards, changes to existing hazards, or changes to the risk of existing hazards, when comparing a one-person train crew operation with a two-person minimum train crew operation. Paragraph (b) describes the quantitative approach to assessing the severity of each of the hazards identified under paragraph (a) and the probability of occurrence. Paragraph (c) describes the process for applying sustained mitigation strategies and the requirement to recalculate the risk based on the implementation of those mitigation strategies. Paragraph (d) describes how to prepare a risk matrix that classifies the risks calculated in paragraph (c) in terms of severity and likelihood of each new hazard, change to an existing hazard, or change to the risk of an existing hazard.

Paragraph (e) describes how to prepare a risk report documenting the basis for acceptability of all hazards not eliminated through the risk assessment process, *i.e.,* the residual risk associated with the remaining partially mitigated or unmitigated hazards identified in the risk matrix. Paragraph (f) describes that, for a railroad to exercise this option, it must be able to conclude its risk assessment by issuing a statement with supporting evidence, that the one-

[326] 87 FR 45603.

[327] 87 FR 45603–04.

[328] 87 FR 45604–05.

person operation with a fully implemented mitigation plan, is as safe or safer than a two-person minimum operation.

## IV. Regulatory Impact and Notices

### *A. Executive Order 12866 as Amended by Executive Order 14094*

This final rule is a significant regulatory action within the meaning of Executive Order 12866 as amended by Executive Order 14094, Modernizing Regulatory Review,[329] and DOT Order 2100.6A (''Rulemaking and Guidance Procedures''). Details on the estimated costs of this final rule can be found in the RIA, which FRA has prepared and placed in the docket (FRA–2021–0032).

The final rule requires railroads seeking to operate trains with one-person train crews to submit a notification to FRA and in some cases, seek FRA approval for such an operation. The petition process requires the submission of information to determine if a proposed one-person train crew operation will be as safe or safer than a two-person minimum train crew operation. Class II and Class III railroads not transporting certain types or quantities of hazardous materials are required to submit a notification to FRA when commencing one-person train crew operations, adopt and comply with operating rules necessary to ensure the one-person train crewmember's safety and ensure the railroad is prepared to take appropriate mitigation measures in response to certain safety-critical situations, and equip a one-person train crew's controlling locomotive with an alerter.

FRA analyzed the economic impact of this final rule. FRA estimated the costs associated with alerters, operating rules, notification to FRA, risk assessments and special approvals, annual reporting after receipt of special approval, and Government administration. FRA qualitatively discusses the benefits but does not have sufficient data to monetize those benefits.

FRA estimates the 10-year costs of the final rule to be $6.6 million, discounted at 7 percent. The annualized costs are estimated to be $0.9 million discounted at 7 percent. The following table shows the total costs of this final rule, over the 10-year analysis period.

TOTAL 10-YEAR DISCOUNTED COSTS

[2022 Dollars] [330]

| Category | Total cost, 7 percent ($) | Total cost, 3 percent ($) | Annualized cost, 7 percent ($) | Annualized cost, 3 percent ($) |
|---|---|---|---|---|
| Alerters (Legacy Operations) | 2,176,402 | 2,217,233 | 309,871 | 259,927 |
| Alerters (New Operations) | 2,251,306 | 2,483,470 | 320,535 | 291,138 |
| Operating Rules (Existing Operations) | 119,954 | 119,954 | 17,079 | 14,062 |
| Operating Rules (New Operations) | 280,824 | 308,591 | 39,983 | 36,176 |
| Notification (Existing Operations) | 185,114 | 185,114 | 26,356 | 21,701 |
| Notification (New Operations) | 111,133 | 122,593 | 15,823 | 14,372 |
| Risk Assessment and Special Approval (Class I) | 560,745 | 570,571 | 79,837 | 66,888 |
| Risk Assessment and Special Approval (Class II and III) | 162,446 | 164,506 | 23,129 | 19,285 |
| Risk Assessment (Material Modifications) | 93,031 | 111,178 | 13,246 | 13,033 |
| Annual Reporting | 182,821 | 221,284 | 26,030 | 25,941 |
| Government Administrative Cost | 513,100 | 579,523 | 73,054 | 67,938 |
| Total Costs | 6,636,876 | 7,084,016 | 944,942 | 830,463 |

The primary benefit of this final rule is to ensure that each train is adequately staffed and has appropriate safeguards in place for safe train operations under all operating conditions. This final rule will also ensure that several significant operational safety issues with one-person train crews are addressed and allow FRA to collect information and data on one-person train crews. For instance, FRA will close a safety issue by requiring alerters for Class II and III railroads operating with a one-person train crew that do not already have these safety devices installed on their locomotives for that type of operation. Alerters will ensure that if a crewmember becomes unresponsive, the train will apply emergency brakes—a function typically left to a conductor or other second crewmember. FRA will also address issues that it cannot currently verify are addressed by each railroad's one-person train crew operations. These include public and rail employee concerns with the operational safety of a train operated by a one-person crew, the operational safeguards to protect that crewmember in various situations, and the impact of one-person train crew operations that travel through communities and need to take action to mitigate consequences in certain safety-critical situations. These are important safety issues when operating trains with one-person crews.

For Class I railroads operating with one-person train crews and Class II and III railroads transporting certain types and quantities of hazardous materials, this rule will ensure the railroads identify, evaluate, and address safety concerns that may arise from such operations by submitting a risk assessment to FRA for approval.

A second crewmember performs important safety functions that could be lost when reducing crew size to one person. The safety requirements in this final rule will allow the rail industry to continue, or initiate, train operations with a one-person train crew by ensuring that at least minimum safety requirements are met and that more complex operations make a concerted effort to mitigate the risks of foreseeable hazards.

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

The Regulatory Flexibility Act of 1980 [331] and Executive Order 13272 [332] require agency review of proposed and final rules to assess their impacts on small entities. An agency must prepare a Final Regulatory Flexibility Analysis

[329] 88 FR 21879 (April 6, 2023) located at *https://www.federalregister.gov/documents/2023/04/11/2023-07760/modernizing-regulatory-review.*

[331] 5 U.S.C. 601 *et seq.*

[332] 67 FR 53461 (Aug. 16, 2002).

(FRFA) unless it determines and certifies that a rule will not have a significant economic impact on a substantial number of small entities. FRA prepared this FRFA to evaluate the impact of the final rule on small entities and describe the effort to minimize the adverse impact because FRA did not make the determination necessary to avoid it.

1. Statement of the Need for, and Objectives of, the Rule

Currently, the majority of trains operate with two crewmembers. The final rule helps ensure safe rail operations when railroads are using one-person train crews, or plan to reduce train crew sizes from two or more crewmembers to a one-person train crew, by prohibiting railroads from taking on unacceptable levels of safety risks with the potential to detrimentally impact railroad employees, the public, or the environment.

This final rule requires that railroads have appropriate safeguards in place for safe train operations, whenever a railroad is operating with only one crewmember that travels on the train. Although operations with one-person train crews already exist in the United States, this final rule will help ensure consistency from State to State regarding the safety of such operations, and it provides several paths forward for railroads that wish to transition to one-person train crew operations. Additionally, the annual reporting requirement for operations that receive special approval will provide FRA with information regarding these one-person train crew operations on a periodic basis that is expected to be informative, allow for agency oversight, and lead to additional safety improvements.

2. Significant Issues Raised by Public Comments

FRA received several comments related to the costs of the proposed rule. ASLRRA and short line railroads submitted comments related to the proposed rule. Issues not concerning the economics of the rule have been discussed above in the discussion of comments and conclusions. Comments were received from ASLRRA relating to the cost estimates and the number of small entities impacted by the rule. ASLRRA's concerns included not accounting for the cost of alerters, too low of a cost estimate for risk assessments, and a higher number of affected entities than what FRA estimated in the proposed rule.

In response to the affected number of entities, FRA has increased the estimate to 75 legacy operations based on comments received in response to the NPRM. All but two of these legacy operations are on small railroads. Therefore, FRA estimates there are approximately 73 small railroads currently operating that will be impacted by this final rule. FRA has also accounted for the cost for alerters in the final rule's RIA. Based on ASLRRA's comment, FRA has included the estimated cost of $20,000 per alerter.

Further, FRA has revised the cost for preparing risk assessments from the estimates presented in the NPRM. ASLRRA commented that current one-person operations hauling hazardous materials would have to hire additional employees because such operations would not be allowed under the proposed requirements. However, in the final rule, Class III railroads will be allowed to continue legacy one-person train crew operations that transport hazardous materials of the types or quantities specified in § 218.123(c), provided that they notify FRA. Therefore, small railroads with such train operations will be able to continue operating with one-person crews and will not need to hire additional employees if they adhere to the requirements in this final rule. Class III railroads that would like to commence new one-person train crew operations transporting certain types and quantities of hazardous materials specified in the final rule will need to apply for special approval and conduct a risk assessment but should not need to hire additional crewmembers to transition from a two-person train crew operation to a one-person train crew operation.

3. Response to Comments Filed by the Chief Counsel for Advocacy of the Small Business Administration

FRA received a comment from SBA-Advocacy, asserting that FRA appears to have significantly understated the cost and number of small businesses that would be impacted by the proposed rule.

As stated above, FRA has revised the estimated number of small entities impacted to 73 railroads with legacy operations, up from the original 7 estimated in the RIA for the NPRM. Currently, approximately 75 railroads operate some trains with one-person crews. All but two of those operations are small railroads. Therefore, FRA estimates there are approximately 73 small railroads currently operating that will be impacted by this final rule.

SBA-Advocacy also commented that FRA should revise and republish its Initial Regulatory Flexibility Analysis (IRFA), or a Supplemental IRFA, including further consideration of significant regulatory alternatives, for additional public comment before proceeding.

As FRA has made several changes in the final rule from the proposal in the NPRM, FRA is publishing this FRFA to aid the public in determining the impact to small entities. FRA has adjusted the costs and revised the final rule based on public comments, including comments from small entities and SBA-Advocacy. FRA also provided extra time and various opportunities (including a public hearing) for interested parties, including small entities, to comment.

4. Description and Estimate of the Number of Small Entities to Which the Rule Will Apply

The Regulatory Flexibility Act of 1980 requires a review of proposed and final rules to assess their impact on small entities, unless the Secretary certifies that the rule would not have a significant economic impact on a substantial number of small entities. ''Small entity'' is defined in 5 U.S.C. 601 as a small business concern that is independently owned and operated and is not dominant in its field of operation. The U.S. Small Business Administration (SBA) has authority to regulate issues related to small businesses, and stipulates in its size standards that a ''small entity'' in the railroad industry is a for profit ''line-haul railroad'' that has fewer than 1,500 employees, a ''short line railroad'' with fewer than 1,500 employees, a ''commuter rail system'' with annual receipts of less than $47.0 million dollars, or a contractor that performs support activities for railroads with annual receipts of less than $34.0 million.[333]

Federal agencies may adopt their own size standards for small entities in consultation with SBA and in conjunction with public comment. Under that authority, FRA has published a proposed statement of agency policy that formally establishes ''small entities'' or ''small businesses'' as railroads, contractors, and hazardous materials shippers that meet the revenue requirements of a Class III railroad as set forth in 49 CFR part 1201, General Instruction 1–1, which is $20 million or less in inflation-adjusted annual revenues,[334] and commuter railroads or

[333] U.S. Small Business Administration, ''Table of Small Business Size Standards Matched to North American Industry Classification System Codes, March 27, 2023. *https://www.sba.gov/sites/sbagov/files/2023-06/Table%20of%20Size%20Standards_Effective%20March%2017%2C%202023%20%282%29.pdf.*

[334] The Class III railroad revenue threshold is $46.3 million or less, for 2022. *https://www.ecfr.gov/current/title-49/subtitle-B/chapter-X/subchapter-C/part-1201.*

small governmental jurisdictions that serve populations of 50,000 or less.[335] FRA is using this definition for the final rule.

When shaping the final rule, FRA considered the impact that the final rule would have on small entities. FRA has provided exceptions to the two-person crew requirement which would limit the impact on small entities. In addition, tourist train operations that are not part of the general system may operate with one-person crews.

The final rule is applicable to all railroads, although only railroads that operate trains with one crewmember would be affected. FRA estimates there are 768 Class III railroads, of which 734 operate on the general system. These railroads are of varying size, with approximately 250 Class III railroads belonging to larger holding companies.

Many small railroads will qualify for an exception under § 218.129, which allows for one-person operations if a railroad is a legacy one-person freight train operation, work train operation, helper service train operation, or lite locomotive train operation staffed with a one-person train crew. Those railroads will not need to petition FRA for special approval for such an operation, nor will they be required to submit a risk assessment. They will be required to notify FRA of the operation and ensure that they adopt and comply with operating rules for the one-person operation and equip the one-person train crew's controlling locomotive with an alerter.

FRA estimates that there are 73 legacy operations on Class III railroads. Legacy operations will be required to notify FRA of the operation and ensure that they adopt and comply with operating rules for the one-person operation and equip the one-person train crew's controlling locomotive with an alerter. Over the 10-year analysis, FRA estimates an additional 84 Class III railroads will be impacted by this final rule; this includes 50 railroads that would be required to notify FRA and 34 that would require special approval from FRA. The following table shows the estimated number of new one person operations per year on Class III railroads.

| Year | Class III railroads, notification | Class III railroads, special approval |
|---|---|---|
| 1 | 11 | 7 |
| 2 | 11 | 7 |
| 3 | 5 | 4 |
| 4 | 5 | 4 |
| 5 | 3 | 2 |
| 6 | 3 | 2 |
| 7 | 3 | 2 |
| 8 | 3 | 2 |
| 9 | 3 | 2 |
| 10 | 3 | 2 |
| Total | 50 | 34 |

Some of those railroads may be some of the same railroads already operating a legacy one-person operation. If a railroad is beginning a new operation that does not fall under the parameters of the legacy operation, it will be required to notify FRA or apply for special approval, depending on the commodities transported. All new operations will need to adopt and comply with operating rules for one-person train crew operations and equip a one-person train crew's controlling locomotive with an alerter.

5. Description of the Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Rule

The final rule requires Class III railroads to notify FRA of current one-person train crew operations. Those operations must have operating rules relevant to one-person train crews and equip one-person locomotives with alerters. Class III railroads that commence one-person train crew operations that transport hazardous materials of the types or quantities specified in § 218.123(c) must apply for special approval and conduct a risk assessment. Class III railroads commencing one-person train crew operations not hauling the types or quantities specified in § 218.123(c) will need to notify FRA of the operation but will not need to apply for special approval. Those railroads will also need to comply with the requirements for operating rules and alerters in locomotives of one-person train crews.

FRA estimates 73 one-person train crew operations currently exist across the Class III railroad industry. The following table shows the estimated number of new one-person operations over the 10-year analysis. These estimates are used throughout the analysis to estimate the impact to Class III railroads.

Railroads currently operating trains with one-person crews that do not have an alerter installed in the locomotive will need to install an alerter in a one-person train crew's controlling locomotive within two years of the effective date of the final rule.

Each alerter is estimated to cost $20,000 and each railroad would require, on average, 1.5 alerters for one-person train crew operations. The following table shows the cost to equip locomotives with alerters.

Class III railroads with legacy one-person train crew operations required to install alerters will have up to two years after the effective date of the final rule to install alerters. FRA estimates that the cost will be split over the first two years. The following table shows the 10-year estimated cost for legacy Class III one-person train crew operations to equip locomotives with alerters. The total estimated 10-year cost will be $2.2 million. The estimated annualized cost will be $301,607 (PV, 7%).

TOTAL 10-YEAR COST FOR ALERTERS, CLASS III RAILROADS WITH LEGACY OPERATIONS

| Year | Total cost ($) | Present value 7% ($) | Present value 3% ($) |
|---|---|---|---|
| 1 | 1,095,000 | 1,095,000 | 1,095,000 |
| 2 | 1,095,000 | 1,023,364 | 1,063,107 |
| 3 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 |
| 6 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 |

[335] *See* 68 FR 24891 (May 9, 2003) (codified at appendix C to 49 CFR part 209).

TOTAL 10-YEAR COST FOR ALERTERS, CLASS III RAILROADS WITH LEGACY OPERATIONS—Continued

| Year | Total cost ($) | Present value 7% ($) | Present value 3% ($) |
|---|---|---|---|
| 10 | 0 | 0 | 0 |
| Total | 2,190,000 | 2,118,364 | 2,158,107 |
| Annualized | | 301,607 | 252,996 |

The following table shows the cost for new one-person operations on Class III railroads to equip locomotives with alerters. The total estimated 10-year cost will be $2.5 million. The estimated annualized cost will be $296,791 (PV, 7%).

TOTAL 10-YEAR COST FOR ALERTERS, NEW CLASS III OPERATIONS

| Year | Number of new one-person operations per year<br>a | Number of alerters per operation<br>b | Total cost per alerter ($)<br>c | Total cost ($)<br>d = a * b * c | Present value 7% ($) | Present value 3% ($) |
|---|---|---|---|---|---|---|
| 1 | 18 | 1.5 | 20,000 | 540,000 | 540,000 | 540,000 |
| 2 | 18 | 1.5 | 20,000 | 540,000 | 504,673 | 524,272 |
| 3 | 9 | 1.5 | 20,000 | 270,000 | 235,828 | 254,501 |
| 4 | 9 | 1.5 | 20,000 | 270,000 | 220,400 | 247,088 |
| 5 | 5 | 1.5 | 20,000 | 150,000 | 114,434 | 133,273 |
| 6 | 5 | 1.5 | 20,000 | 150,000 | 106,948 | 129,391 |
| 7 | 5 | 1.5 | 20,000 | 150,000 | 99,951 | 125,623 |
| 8 | 5 | 1.5 | 20,000 | 150,000 | 93,412 | 121,964 |
| 9 | 5 | 1.5 | 20,000 | 150,000 | 87,301 | 118,411 |
| 10 | 5 | 1.5 | 20,000 | 150,000 | 81,590 | 114,963 |
| Total | | | | 2,520,000 | 2,084,539 | 2,309,486 |
| Annualized | | | | | 296,791 | 270,742 |

The final rule requires each freight railroad with a legacy one-person train crew operation to adopt and comply with operating rules that establish regular and effective communication with a one-person train crew to ensure the safety of the train and that one-person train crewmember's safety. Each railroad will need approximately 12 hours to formalize these operating rules.

The following table shows the cost of formalizing operating rules for legacy Class III one-person train crew operations. This cost would be incurred only in year 1. Therefore, the total estimated 10-year cost will be $108,106. The estimated annualized cost will be $15,392 (PV, 7%).

COST OF FORMALIZING OPERATING RULES, LEGACY CLASS III OPERATIONS

| Type of employee | Hours<br>a | Hourly wage rate ($)<br>b | Total cost per notification ($)<br>c = a * b | Number of legacy operations<br>d | Total annual cost across industry ($)<br>e = c * d |
|---|---|---|---|---|---|
| Senior Managers | 4 | 123.41 | 494 | | |
| Superintendents | 4 | 123.41 | 494 | | |
| Train Masters | 2 | 123.41 | 247 | | |
| Road Foreman | 2 | 123.41 | 247 | | |
| Total | 12 | | 1,481 | 73 | 108,106 |

Class III railroads implementing one-person train crew operations will be required to adopt and comply with operating rules that establish regular and effective communication with a one-person train crew to ensure the safety of the train and that one-person train crewmember's safety. The following table shows the cost of formalizing operating rules for new Class III one-person train crew operations. It is estimated to take 12 hours per railroad for a total cost of $1,481 per railroad.

COST OF FORMALIZING OPERATING RULES, NEW CLASS III OPERATIONS

| Type of employee | Hours | Hourly wage rate ($) | Total cost per railroad ($) |
|---|---|---|---|
| | a | b | c = a * b |
| Senior Managers | 4 | 123.41 | 494 |
| Superintendents | 4 | 123.41 | 494 |
| Train Masters | 2 | 123.41 | 247 |
| Road Foreman | 2 | 123.41 | 247 |
| Total | 12 | | 1,481 |

The following table shows the total 10-year costs for Class III railroads to adopt and comply with operating rules for communication and emergency situations specific to one-person train crew operations. The total estimated 10-year cost is $124,396. The annualized cost is $14,651 (PV, 7%).

TOTAL 10-YEAR COSTS OF OPERATING RULES, NEW CLASS III OPERATIONS

| Year | Number of new one-person operations per year | Total cost per operation ($) | Total cost ($) | Present value 7% ($) | Present value 3% ($) |
|---|---|---|---|---|---|
| | a | b | c = a * b | | |
| 1 | 18 | 1,481 | 26,656 | 26,656 | 26,656 |
| 2 | 18 | 1,481 | 26,656 | 24,913 | 25,880 |
| 3 | 9 | 1,481 | 13,328 | 11,641 | 12,563 |
| 4 | 9 | 1,481 | 13,328 | 10,880 | 12,197 |
| 5 | 5 | 1,481 | 7,405 | 5,649 | 6,579 |
| 6 | 5 | 1,481 | 7,405 | 5,279 | 6,387 |
| 7 | 5 | 1,481 | 7,405 | 4,934 | 6,201 |
| 8 | 5 | 1,481 | 7,405 | 4,611 | 6,021 |
| 9 | 5 | 1,481 | 7,405 | 4,310 | 5,845 |
| 10 | 5 | 1,481 | 7,405 | 4,028 | 5,675 |
| Total | | | 124,396 | 102,901 | 114,005 |
| Annualized | | | | 14,651 | 13,365 |

The final rule requires each freight railroad with a legacy one-person train crew operation to provide certain information about the operation in a written notification to FRA. It will take approximately 20 hours for each Class III railroad to prepare and make the notification to FRA of its one-person operations.

The following table shows the cost for legacy Class III railroad operations to make the notification to FRA. This cost would be incurred only in year 1. Therefore, the total estimated cost will be $180,177. The estimated annualized cost will be $25,653 (PV, 7%).

COST OF NOTIFICATION, LEGACY CLASS III OPERATIONS

| Type of employee | Hours per notification | Hourly wage rate ($) | Total cost per notification ($) | Number of notifications | Total annual cost across industry ($) |
|---|---|---|---|---|---|
| | a | b | c = a * b | d | e = c * d |
| Senior Managers | 7 | 123.41 | 864 | | |
| Superintendents | 5 | 123.41 | 617 | | |
| Train Masters | 4 | 123.41 | 494 | | |
| Road Foreman | 4 | 123.41 | 494 | | |
| Total | 20 | | 2,468 | 73 | 180,177 |

The final rule requires each Class III freight railroad that plans to initiate a one-person train crew operation after the final rule's effective date that will not be transporting certain types or quantities of hazardous materials that have been determined to pose the highest risk in transportation to provide FRA with written notification of the operation before commencing the operation. The following table shows the cost for Class III railroads to notify FRA of new one-person operations. It is estimated to take 20 hours per railroad

to prepare and make the notification to FRA for a total cost of $2,468.

COST OF NOTIFICATION, NEW CLASS III RAILROAD OPERATIONS

| Type of employee | Hours per notification<br>a | Hourly wage rate ($)<br>b | Total cost per notification ($)<br>c = a * b |
|---|---|---|---|
| Senior Managers | 7 | 123.41 | 864 |
| Superintendents | 5 | 123.41 | 617 |
| Train Masters | 4 | 123.41 | 494 |
| Road Foreman | 4 | 123.41 | 494 |
| Total | 20 | | 2,468 |

The following table shows the total 10-year costs for Class III railroads to notify FRA when commencing new one-person train crew operations. This option could also be used by railroads that are continuing an operation that was established less than two years before the effective date of the final rule. Railroads hauling certain types and quantities of hazardous materials require special approval; hence, those operations are not included in this estimate. The estimates here are solely for operations that only require notification to FRA. The total estimated 10-year cost is $133,282. The annualized cost is $15,823 (PV, 7%).

TOTAL 10-YEAR COST OF NOTIFICATION, NEW CLASS III RAILROAD OPERATIONS

| Year | Estimated notifications per year<br>a | Total cost per notification ($)<br>b | Total cost ($)<br>c = a * b | Present value 7% ($) | Present value 3% ($) |
|---|---|---|---|---|---|
| 1 | 12 | 2,468 | 29,618 | 29,618 | 29,618 |
| 2 | 12 | 2,468 | 29,618 | 27,681 | 28,756 |
| 3 | 6 | 2,468 | 14,809 | 12,935 | 13,959 |
| 4 | 6 | 2,468 | 14,809 | 12,089 | 13,552 |
| 5 | 3 | 2,468 | 7,405 | 5,649 | 6,579 |
| 6 | 3 | 2,468 | 7,405 | 5,279 | 6,387 |
| 7 | 3 | 2,468 | 7,405 | 4,934 | 6,201 |
| 8 | 3 | 2,468 | 7,405 | 4,611 | 6,021 |
| 9 | 3 | 2,468 | 7,405 | 4,310 | 5,845 |
| 10 | 3 | 2,468 | 7,405 | 4,028 | 5,675 |
| Total | | | 133,282 | 111,133 | 122,593 |
| Annualized | | | | 15,823 | 14,372 |

The final rule requires Class III freight railroads that haul certain types or quantities of hazardous materials that have been determined to pose the highest risk in transportation that want to initiate a new operation with a one-person train crew or continue an operation that was established less than two years before the effective date of the final rule to petition FRA under a special approval procedure. As part of the special approval process, these railroads will be required to conduct a risk assessment. The risk assessment must include a description of the final operation, a hazard analysis, and discussion of the tasks and functions of the one crewmember and equipment.

ASLRRA and holding companies will likely create a model or template program that can be used by Class III railroads; therefore, the burden for each Class III railroad is estimated to be six hours per one-person train crew operation. The estimated cost per railroad is $665 to apply for special approval and submit a risk assessment.

COST OF SPECIAL APPROVAL AND RISK ASSESSMENT, CLASS III RAILROADS

| | Hourly wage rate ($)<br>(a) | Number of hours per railroad<br>(b) | Total cost per railroad ($)<br>(c) = (a) * (b) |
|---|---|---|---|
| Chief Safety Officer | 123.41 | 4 | 494 |
| Administrative Assistant | 85.93 | 2 | 172 |
| Total per Railroad | | 6 | 665 |

The following table shows the total 10-year costs for Class III railroads to apply for special approval and conduct a risk assessment. Only railroads hauling certain types and quantities of hazardous materials require special approval, including a risk assessment. The total estimated 10-year cost is $22,627. The annualized cost is $2,661 (PV, 7%).

TOTAL 10-YEAR COST FOR SPECIAL APPROVAL AND RISK ASSESSMENT, CLASS III RAILROADS

| Year | Number of risk assessments per year<br>a | Total cost per risk assessment ($)<br>b | Total costs ($)<br>c = a * b | Present value 7% ($) | Present value 3% ($) |
|---|---|---|---|---|---|
| 1 | 7 | 665 | 4,658 | 4,658 | 4,658 |
| 2 | 7 | 665 | 4,658 | 4,354 | 4,523 |
| 3 | 4 | 665 | 2,662 | 2,325 | 2,509 |
| 4 | 4 | 665 | 2,662 | 2,173 | 2,436 |
| 5 | 2 | 665 | 1,331 | 1,015 | 1,183 |
| 6 | 2 | 665 | 1,331 | 949 | 1,148 |
| 7 | 2 | 665 | 1,331 | 887 | 1,115 |
| 8 | 2 | 665 | 1,331 | 829 | 1,082 |
| 9 | 2 | 665 | 1,331 | 775 | 1,051 |
| 10 | 2 | 665 | 1,331 | 724 | 1,020 |
| Total | | | 22,627 | 18,689 | 20,725 |
| Annualized | | | | 2,661 | 2,430 |

Each railroad that receives special approval to use an operation with a one-person train crew must prepare an annual report, which will be a formal review and analysis each calendar year, of the one-person train crew operation. The annual report, which will include a railroad's findings and conclusions from its review, shall be submitted no later than March 31 of the following year. The following table shows the annual labor cost per railroad to complete each report. It is estimated to require approximately 8 hours of labor per railroad for a total cost of $687 per year.

COST OF ANNUAL REPORT, PER RAILROAD

| Type of employee | Hours per railroad<br>a | Hourly wage rate ($)<br>b | Total annual cost per railroad ($)<br>c = a * b |
|---|---|---|---|
| Professional and Administrative | 8 | 85.93 | 687 |

The following table shows the total 10-year costs for Class III railroads to complete the annual report. The total estimated 10-year cost is $156,737. The annualized cost is $15,471 (PV, 7%).

TOTAL 10-YEAR COSTS OF ANNUAL REPORT, CLASS III RAILROADS

| Year | Number of reports per year<br>a | Cost per report ($)<br>b | Total cost ($)<br>c = a * b | Present value 7% ($) | Present value 3% ($) |
|---|---|---|---|---|---|
| 1 | 0 | 687 | 0 | 0 | 0 |
| 2 | 14 | 687 | 9,624 | 8,995 | 9,344 |
| 3 | 18 | 687 | 12,374 | 10,808 | 11,664 |
| 4 | 22 | 687 | 15,124 | 12,346 | 13,840 |
| 5 | 24 | 687 | 16,499 | 12,587 | 14,659 |
| 6 | 26 | 687 | 17,874 | 12,744 | 15,418 |
| 7 | 28 | 687 | 19,248 | 12,826 | 16,120 |
| 8 | 30 | 687 | 20,623 | 12,843 | 16,769 |
| 9 | 32 | 687 | 21,998 | 12,803 | 17,366 |
| 10 | 34 | 687 | 23,373 | 12,713 | 17,914 |
| Total | | | 156,737 | 108,664 | 133,093 |
| Annualized | | | | 15,471 | 15,603 |

The following table shows the annualized costs for all provisions of the final rule. The total annualized cost for all Class III railroads is $687,852 (PV, 7%).

ANNUALIZED COSTS FOR CLASS III RAILROADS' ONE-PERSON OPERATIONS

| Cost category | Annualized cost, 7 percent ($) |
|---|---|
| Alerters, Legacy Operations | 301,607 |
| Alerters, New Operations | 296,791 |
| Operating Rules, Legacy Operations | 15,392 |
| Operating Rules, New Operations | 14,651 |
| Notification to FRA, Legacy Operations | 25,653 |
| Notification to FRA, New Operations | 15,823 |
| Special Approval and Risk Assessment | 2,661 |
| Annual Report | 15,471 |
| Total Annualized Cost for All Class III Railroads | 688,050 |

The industry trade organization representing small railroads, ASLRRA, reports the average freight revenue per Class III railroad is $4.75 million.[336] The following table summarizes the average annual cost and revenue for Class III railroads.

ANNUAL CLASS III RAILROADS' COST AND REVENUE

| Total costs for all Class III railroads, annualized 7 percent ($) | Number of Class III railroads | Average annual cost per Class III railroad ($) | Average Class III revenue ($) | Average annual cost as percent of revenue |
|---|---|---|---|---|
| a | b | c = a ÷ b | d | e = c ÷ d |
| 688,050 | 157 | 4,382 | 4,750,000 | 0.09% |

The estimated average annual cost for a Class III railroad that is operating one-person train crews will be $4,382. This represents a small percentage (0.1%) of the average annual revenue for a Class III railroad.

6. A Description of the Steps the Agency Has Taken To Minimize the Economic Impact on Small Entities

This final rule allows Class III freight railroads to continue operating with one-person train crews for operations established for at least two years before the effective date of the final rule as long as these railroads notify FRA, install alerters, and adopt and comply with operating rules specific for one-person train crews according to the implementation schedule.

In response to comments on the NPRM, FRA has simplified the risk assessment and reduced the number of operations to which the special approval requirement will apply. Railroads commencing one-person train crew operations with certain types and quantities of hazardous materials will be required to petition FRA for special approval and conduct a risk assessment. Class III railroads commencing one-person operations without certain types and quantities of hazardous materials will not need to petition FRA for special approval or complete a risk assessment. Those new one-person train crew operations will require notification to FRA, installation of alerters, and adoption and compliance with operating rules specific for one-person crews. The notification requirement provides flexibility for Class III railroads not hauling certain types and quantities of hazardous materials.

Based on comments requesting more time to comply with any new minimum requirements to allow for proper planning, operational changes, or hiring and training of additional crewmembers, FRA is extending compliance dates for Class III railroads for certain exceptions that cannot be used by a Class I railroad, and therefore Class III railroads are provided greater flexibility in those circumstances such as when a Class III railroad's legacy one-person train crew freight operation has been established for at least two years before the effective date of the final rule or the Class III railroad decides to initiate a new one-person train crew operation that is not transporting hazardous materials of the types or quantities specified in § 218.123(c).

The final rule reflects relief from the proposed prohibition on the transportation of some hazardous materials with a one-person train crew set forth in the NPRM to provide for these legacy operations and new operations subject to conditions to ensure safety.

*C. Paperwork Reduction Act*

FRA is submitting the information collection requirements in this proposed rule to the Office of Management and Budget (OMB) for approval under the Paperwork Reduction Act of 1995.[337] The sections that contain the new information collection requirements and the estimated time to fulfill each requirement are as follows:

[336] American Short Line and Regional Railroad Association, *Short Line and Regional Railroad Facts and Figures, p. 10 (2017 pamphlet).*

[337] 44 U.S.C. 3501 *et seq.*

| CFR section | Respondent universe [338] | Total annual responses (A) | Average time per response (B) | Total annual burden (C = A * B) | Total cost equivalent in U.S. dollar (D = C * wage rates) [339] |
|---|---|---|---|---|---|
| 218.123—General crew size staffing requirements—Each railroad's adoption or revision of rules and practices with the requirement of this subpart G (New requirement). | 784 railroads | 47 adopted rules and practices (27 legacy operations + 3 Class I new operations + 17 Class II and III new operations). | 120 hours (96 + 12 + 12) [340]. | 816.00 hours (288 + 204 + 324). | $70,118.88 |
| —(d)(2) Location of crewmember(s) that is not operating the train when the train is moving—Direct communication between train crew members (New requirement). | Direct communications between train crewmembers during train operations are a usual and customary practice. Consequently, there is no burden associated with this requirement. | | | | |
| 218.125(c)—Specific passenger and tourist train operation exceptions to crew size safety requirements—Passenger railroads' emergency preparedness plan approved under 49 CFR 239.201 (New requirement). | The estimated paperwork burden for emergency preparedness plans is already included under OMB Control Number 2130–0545. Consequently, there is no additional burden associated with this requirement. | | | | |
| —(d)(3) Federal Transit Administration (FTA) and designated State Safety Oversight (SSO) Agency approved Public Transportation Agency Safety Plan in accordance with 49 CFR parts 673 and 674 (New requirement). | The estimated paperwork burden for approved FTA and SSO Public Transportation Agency Safety Plans is included under OMB Control Number 2132–0558. Consequently, there is no additional burden associated with this requirement. | | | | |
| —(e) Existing passenger train operations one-person train crew with an approved emergency preparedness plan (New requirement). | The estimated paperwork burden for emergency preparedness plans is already included under OMB Control Number 2130–0545. Consequently, there is no additional burden associated with this requirement. | | | | |
| 218.129(a)–(b)(11)—Conditional exceptions based on compliance dates for legacy freight train operations, class II and III freight railroad train operations, work train operations, helper service train operations, and lite locomotive train operations staffed with a one-person train crew—Written notice requirements shall be submitted by email to FRA (New requirement). | Class II and III railroads | 35 notices (25 legacy operations + 10 Class II and III new operations). | 40 hours (20 + 20). | 700 hours | $86,387 |
| —(b)(12) Copy of any railroad rule or practice that applies to the one-person train crew operation (New requirement). | The estimated paperwork burden for this requirement is included above under § 218.129(a)–(b)(11). | | | | |
| —(b)(13)–(14) Accident and incident data or any other information describing protections in lieu of a second train crewmember (New requirement). | The estimated paperwork burden for this requirement is included above under § 218.129(b)(1)–(11). | | | | |
| —(c) Additional requirements—Adopt and comply with an operating rule that complies with the requirements of ensuring rail employees can take mitigation measures that provide a level of safety that is as safe or safer than a two-person train crew operation to address certain situations with the one-person train crew operation (New requirement). | The estimated paperwork burden of this requirement is included above under § 218.123. | | | | |
| 218.131(a)(2)(i)—Special approval petition requirements for train operations staffed with a one-person train crew RR with established one-person train crew written notice to continue operations (New requirement). | The estimated paperwork burden for the special approval petition is included with the risk assessment burden under § 218.133. | | | | |
| —(a)(2)(iii) RRs with established one-person train crew to submit special approval petition. | The estimated paperwork burden for the special approval petition is included with the risk assessment burden under § 218.133. | | | | |
| —(a)(3)—Each freight railroad seeking to either initiate or continue a one-person train crew must receive FRA's special approval for the operation under this subpart and comply with section § 218.129(c) (New requirement). | The estimated paperwork burden for special approval petition is included with the risk assessment burden under § 218.133. | | | | |
| —(a)(4)—Passenger railroads seeking to initiate train operations with a one-person train crew must receive FRA's special approval for the operation (New requirement). | The estimated paperwork burden for special approval petition is included with the risk assessment burden under § 218.133. | | | | |
| —(b)(1)–(15) Petition for a train operation staffed with a one-person train crew that is not permitted under §§ 218.125 through 218.129 must contain sufficient information for FRA to determine whether approving the operation described in the petition is as safe or safer than a two-person minimum train crew operation (New requirement). | The estimated paperwork burden for special approval petition is included with the risk assessment burden under § 218.133. | | | | |

| CFR section | Respondent universe [338] | Total annual responses (A) | Average time per response (B) | Total annual burden (C = A * B) | Total cost equivalent in U.S. dollar (D = C * wage rates) [339] |
|---|---|---|---|---|---|
| 218.133(a) Risk assessment content and procedures—General (*Note:* The paperwork burden for special approval petition is included here. The paperwork burden for revised risk assessment is included under § 218.135(e)) (New requirement). | 784 railroads | 10.33 risk assessments (3.33 Class I/Passenger operations + 7 Class II and III operations). | 586; 580 hours + 6 hours. | 1,973.40 Hours (1,931.40 + 42). | 171,148.42 |
| —(b) Alternative standard—Petition for approval to use alternative methodologies (New requirement). | The estimated paperwork burden for this requirement is included under § 218.133 and § 218.135. | | | | |
| 218.135(c)—Special approval procedure—Comments sent to FRA on petitions for special approval (New requirement). | Railroad industry and interested parties. | 10 petition comments | 1 hour | 10 hours | 859.30 |
| —(d)(1) Disposition of petitions—Hearings on petitions (New requirement). | The requirements of this provision are exempted from the Paperwork Reduction Act under 5 CFR 1320.4(a)(2) because this activity is conducted during an administrative action affecting specific individuals or entities. | | | | |
| —(d)(2) Special approval procedure—Disposition of petitions—Petitioners' response to FRA's special conditions to the approval of petition (New requirement). | The estimated paperwork burden for this requirement is included under § 218.135. | | | | |
| —(e) Modifications of operations already approved; revised risk assessments submitted to FRA—All operations (New requirement). | 9 railroads | 1.33 revised risk assessments. | 70 hours | 93.10 hours | 8,000.08 |
| 218.137—Annual railroad responsibilities after receipt of special approval—Annual review and analysis of FRA-approved train operation(s) (New requirement). | 784 railroads | 23 annual reports | 8 hours | 184 hours | 15,811.12 |
| —(d) Railroads' review of FRA response to their annual report (New requirement). | The paperwork burden for this requirement is included above under § 218.137. | | | | |
| Total [341] | 784 railroads | 127 responses | N/A | 3,777 hours | 352,324.81 |

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information. For information or a copy of the paperwork package submitted to OMB, contact Ms. Arlette Mussington, Information Collection Clearance Officer, at email: *arlette.mussington@dot.gov* or telephone: (571) 609–1285; or Ms. Joanne Swafford, Information Collection Clearance Officer, at email: *joanne.swafford@dot.gov* or telephone: (757) 897–9908.

OMB is required to decide concerning the collection of information requirements contained in this rule between 30 and 60 days after publication of this document in the **Federal Register**. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication. FRA is not authorized to impose a penalty on persons for violating information collection requirements that do not display a current OMB control number, if required. FRA intends to obtain current OMB control numbers for any new information collection requirements resulting from this rulemaking action prior to the effective date of the final rule. The current OMB control number for this rule is 2130–0636.

*D. Federalism Implications*

Executive Order 13132, ''Federalism,'' [342] requires FRA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' are defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' Under Executive Order 13132, to the extent practicable and permitted by law, the agency may not issue a regulation with federalism implications that imposes substantial direct compliance costs and that is not required by statute, unless the Federal Government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, the agency consults with State and local governments, or the agency consults with State and local government officials early in the process of developing the regulation. National action limiting the policymaking discretion of the States shall be taken only where there is constitutional and statutory authority for the action and the national activity is appropriate in light of the presence of a problem of national significance. Where there are significant uncertainties as to whether national action is authorized or appropriate, agencies shall consult with appropriate State and local officials to determine whether Federal objectives can be attained by other means.

FRA has analyzed this final rule in accordance with the principles and criteria contained in Executive Order 13132. FRA has determined that this

[338] For purposes of this table, there are 784 railroads, excluding tourist railroads not on the general system, in the respondent universe. Additionally, FRA is currently aware of nine one-person train crew operations.

[339] Throughout the tables in this document, the dollar equivalent cost is derived from the 2022 Surface Transportation Board's Full Year Wage A&B data series using the appropriate employee group hourly wage rate that includes 75-percent overhead charges.

[340] This estimate also includes the burden associated with adopting and complying with operating rules under § 218.123(c).

[341] Totals may not add due to rounding.

[342] 64 FR 43255 (Aug. 10, 1999).

final rule has no federalism implications, other than the possible preemption of State laws under 49 U.S.C. 20106. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply, and preparation of a federalism summary impact statement for the rule is not required.

Further, federalism concerns have been considered in the development of this rule both internally and through consultation within FRA's Federal advisory committee, RSAC, which has as permanent voting members two organizations representing State and local interests: the American Association of State Highway and Transportation Officials (AASHTO) and the Association of State Rail Safety Managers (ASRSM).[343] FRA has also received input from State and local officials through the notice and comment public participation process and left it to State or local officials to decide whether to participate in the publicly held hearing, either in person or virtually. In the discussion of comments and FRA's conclusions, FRA responded to the comments on preemption and further expanded upon the agency's explanation of the perceived preemption implications of the final rule.

*E. International Trade Impact Assessment*

The Trade Agreements Act of 1979 [344] prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. This final rule is purely domestic in nature and is not expected to affect trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States.

*F. Environmental Assessment*

FRA has evaluated this final rule consistent with the National Environmental Policy Act [345] (NEPA), the Council of Environmental Quality's NEPA implementing regulations,[346] and FRA's NEPA implementing regulations [347] and determined that it is categorically excluded from environmental review and therefore does not require the preparation of an environmental assessment (EA) or environmental impact statement (EIS). Categorical exclusions (CEs) are actions identified in an agency's NEPA implementing regulations that do not normally have a significant impact on the environment and therefore do not require either an EA or EIS.[348] Specifically, FRA has determined that this rule is categorically excluded from detailed environmental review.[349]

The main purpose of this rulemaking is to ensure that each train is adequately staffed and has appropriate safeguards in place for safe train operations under all operating conditions. This final rule would not directly or indirectly impact any environmental resources and would not result in significantly increased emissions of air or water pollutants or noise. In analyzing the applicability of a CE, FRA must also consider whether unusual circumstances are present that would warrant a more detailed environmental review.[350] FRA has concluded that no such unusual circumstances exist with respect to this regulation and the final rule meets the requirements for categorical exclusion.[351]

Pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, FRA has determined this undertaking has no potential to affect historic properties.[352] FRA has also determined that this rulemaking does not approve a project resulting in a use of a resource protected by Section 4(f).[353] Further, FRA reviewed this rule and found it consistent with Executive Order 14008, ''Tackling the Climate Crisis at Home and Abroad.''

*G. Environmental Justice*

Executive Order 14096, ''Revitalizing Our Nation's Commitment to Environmental Justice for All,'' which expands on Executive Order 12898, ''Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,'' requires DOT agencies to achieve environmental justice as part of their mission by identifying and addressing, as appropriate, disproportionate and adverse human health or environmental effects, including those related to climate change and cumulative impacts of environmental and other burdens on communities with environmental justice concerns. DOT Order 5610.2C (''U.S. Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations'') instructs DOT agencies to address compliance with Executive Order 12898 and requirements within the DOT Order 5610.2C in rulemaking activities, as appropriate, and also requires consideration of the benefits of transportation programs, policies, and other activities where minority populations and low-income populations benefit, at a minimum, to the same level as the general population as a whole when determining impacts on minority and low-income populations.[354] FRA has evaluated this final rule under Executive Orders 14096 and 12898 and DOT Order 5610.2C and has determined it will not cause disproportionate and adverse human health and environmental effects on communities with environmental justice concerns.

*H. Unfunded Mandates Reform Act of 1995*

Under section 201 of the Unfunded Mandates Reform Act of 1995,[355] each Federal agency ''shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law).'' Section 202 of the Act [356] further requires that ''before promulgating any general notice of proposed rulemaking that is likely to result in promulgation of any rule that includes any Federal mandate that may result in the

[343] In 1996, FRA established RSAC to develop new regulatory standards, through a collaborative process, with all segments of the rail community working together to fashion mutually satisfactory solutions on safety regulatory issues. Information about RSAC, including background, tasks, and documents, is available at *https://rsac.fra.dot.gov/about.* Although this rulemaking was not tasked to RSAC, FRA provided a regulatory activity update on the rulemaking at two RSAC meetings before the NPRM was published and at one meeting during the rulemaking's comment period and encouraged interested members of RSAC to submit comments or participate at the public hearing.

[344] 19 U.S.C. Ch. 13.

[345] 42 U.S.C. 4321 *et seq.*

[346] 40 CFR parts 1500 through 1508.

[347] 23 CFR part 771.

[348] 40 CFR 1508.4.

[349] *See* 23 CFR 771.116(c)(15) (categorically excluding ''[p]romulgation of rules, the issuance of policy statements, the waiver or modification of existing regulatory requirements, or discretionary approvals that do not result in significantly increased emissions of air or water pollutants or noise'').

[350] 23 CFR 771.116(b).

[351] 23 CFR 771.116(c)(15).

[352] *See* 54 U.S.C. 306108.

[353] *See* DOT Act of 1966, as amended (Pub. L. 89–670, 80 Stat. 931); 49 U.S.C. 303.

[354] Executive Order 14096 is not currently referenced in DOT Order 5610.2C.

[355] Public Law 104–4, 2 U.S.C. 1531.

[356] 2 U.S.C. 1532.

expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100,000,000 or more (adjusted annually for inflation) in any 1 year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency shall prepare a written statement'' detailing the effect on State, local, and tribal governments and the private sector. This final rule will not result in the expenditure, in the aggregate, of $100,000,000 or more (as adjusted annually for inflation) in any one year, and thus preparation of such a statement is not required.

*I. Energy Impact*

Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,'' requires Federal agencies to prepare a Statement of Energy Effects for any ''significant energy action.'' [357] FRA evaluated this final rule under Executive Order 13211 and determined that this regulatory action is not a ''significant energy action'' within the meaning of Executive Order 13211.

**List of Subjects in 49 CFR Part 218**

Occupational safety and health, Penalties, Railroad employees, Railroad safety, Reporting and recordkeeping requirements.

**The Rule**

For the reasons discussed in the preamble, FRA amends chapter II, subtitle B of title 49 of the Code of Federal Regulations as follows:

## PART 218—[AMENDED]

■ 1. The authority citation for part 218 continues to read as follows:

**Authority:** 49 U.S.C. 20103, 20107, 20131, 20138, 20144, 20168; 28 U.S.C. 2461 note; and 49 CFR 1.89.

## Subpart A—General

■ 2. Amend § 218.5 by adding definitions in alphabetical order for ''Associate Administrator for Safety'', ''FTA'', ''Hazard'', ''Helper service train operation'', ''Lite locomotive train operation'', ''Locomotive, MU'', ''Mishap'', ''One-person train crew'', ''One-person train crewmember'', ''Risk'', ''Risk assessment'', ''Switching service or switching operation'', ''Tourist train operation'', ''Tourist train operation that is not part of the general railroad system of transportation'', ''Trailing tons'', ''Train'' and ''Unit freight train'' to read as follows:

**§ 218.5 Definitions.**

* * * * *

*Associate Administrator for Safety* means the Associate Administrator for Railroad Safety and Chief Safety Officer of the Federal Railroad Administration or that person's delegate as designated in writing.

* * * * *

*FTA* means the Federal Transit Administration.

* * * * *

*Hazard* means an existing or potential condition that could lead to an unplanned event or series of events that can result in an accident or incident (*i.e.,* mishap); injury, illness, or death; damage to or loss of a system, equipment, or property; or damage to the environment.

*Helper service train operation* means the train is a locomotive or group of locomotives being used to assist another train that has incurred mechanical failure or lacks sufficient tractive force necessary to traverse a particular section of track due to train tonnage and the grade of the terrain.

* * * * *

*Lite locomotive train operation* means the train is a locomotive or a consist of locomotives not attached to any piece of equipment or attached only to a caboose.

* * * * *

*Locomotive, MU* means rail rolling equipment self-propelled by any power source and intended to provide transportation for members of the general public.

* * * * *

*Mishap* means an event or condition or series of events or conditions resulting in an accident or incident.

*One-person train crew* means either:

(1) One railroad employee is assigned a train as a train crew, and that single assigned person is performing the duties of both the locomotive engineer and the conductor; or

(2) More than one railroad employee is assigned a train as a train crew, but only a single assigned person, who is performing the duty of the locomotive engineer, is traveling on the train when the train is moving, and the remainder of the train crew, that would include the conductor if the locomotive engineer is not the assigned conductor, is assigned to intermittently assist the train's movements.

*One-person train crewmember* means, in the context of a one-person train crew operation, the single assigned person who is performing the duty of the locomotive engineer and is traveling in the operating cab of the controlling locomotive when the train is moving.

*Risk* means the combination of the expected probability (or frequency of occurrence) and the consequence (or severity) of a hazard.

*Risk assessment* means the process of determining, either quantitatively or qualitatively, or both, the level of risk associated with train operations with a one-person train crew, compared to operations with a two-person (or larger) crew, under all operating conditions.

* * * * *

*Switching service or switching operation* means classifying rail cars according to commodity or destination; assembling of cars for train movements; changing the position of cars for purposes of loading, unloading, or weighing; placing locomotives and cars for repair or storage; or moving of rail equipment in connection with work service that does not constitute a train movement.

*Tourist train operation* means a tourist, scenic, historic, or excursion train operation.

*Tourist train operation that is not part of the general railroad system of transportation* means a tourist, scenic, historic, or excursion train operation conducted only on track used exclusively for that purpose (*i.e.,* there is no freight, intercity passenger, or commuter passenger railroad operation on the track).

*Trailing tons* means the sum of the gross weights—expressed in tons–of the cars and the locomotives in a train that are not providing propelling power to the train.

*Train* means one or more locomotives coupled with or without cars, except during switching service.

* * * * *

*Unit freight train* means a freight train composed of cars carrying a single type of commodity.

* * * * *

## Subpart F—Handling Equipment, Switches, and Fixed Derails

**§ 218.93 [Amended]**

■ 3. Amend § 218.93 by removing the definitions for ''Associate Administrator for Safety'' and ''Lite locomotive consist''.

* * * * *

■ 4. Amend § 218.99 by revising paragraph (a)(2), the introductory text of paragraph (b)(3), and paragraph (e)(2) to read as follows:

**§ 218.99 Shoving or pushing movements.**

(a) * * *

(2) The following requirements for shoving or pushing movements do not apply to rolling equipment intentionally

[357] 66 FR 28355 (May 22, 2001).

shoved or pushed to permit the rolling equipment to roll without power attached, *i.e.,* free rolling equipment, during switching service activities known as kicking, humping, or dropping cars.

(b) * * *

(3) *Point protection.* When rolling equipment or a lite locomotive train with two or more locomotives that is operated from a single control stand is shoved or pushed, point protection shall be provided by a crewmember or other qualified employee by:

* * * * *

(e) * * *

(2) Shoving or pushing operations with a helper service train operation or distributed power locomotives assisting a train when the train is being operated from the leading end in the direction of movement;

* * * * *

■ 5. Add subpart G to read as follows:

**Subpart G—Train Crew Size Safety Requirements**

Sec.



## Subpart G—Train Crew Size Safety Requirements

### § 218.121 Purpose and scope.

(a) The purpose of this subpart is to ensure that each train is adequately staffed and has appropriate safeguards in place for safe train operations under all operating conditions.

(b) This subpart prescribes minimum requirements for the size of different train crews depending on the type of operation and operating conditions. The minimum crew size requirements reflect the safety risks posed to railroad employees, the public, and the environment. This subpart also prescribes minimum requirements for the location of a second crewmember on a moving train and promotes safe and effective teamwork. Each railroad may prescribe additional or more stringent requirements in its operating rules, timetables, timetable special instructions, and other instructions.

(c) The requirements in this subpart are not applicable to a train operation controlled by a remote control operator as defined in § 229.5 of this chapter.

### § 218.123 General train crew size safety requirements.

(a) *General.* Each railroad shall comply with the requirements of this subpart and may adopt its own rules or practices consistent with the requirements of this subpart. If any person, as defined in § 218.9 (including, but not limited to, each railroad, railroad officer, supervisor, and employee), violates any requirement of a railroad rule or practice implementing the requirements of this subpart, that person shall be considered to have violated the requirements of this subpart.

(b) *Two-person train crew size safety requirement.* Except as provided in this subpart, each train shall be assigned a minimum of two crewmembers.

(c) *Hazardous materials.* For the purposes of this paragraph (c), a tank car containing residue of a hazardous material as defined in § 171.8 of this title is not considered a loaded car. The exceptions in §§ 218.125 and 218.127 are not applicable, and the exceptions in § 218.129 apply as specified therein, when any train is:

(1) A high-hazard flammable train (HHFT) as defined in § 171.8 of this title;

(2) Transporting twenty (20) or more loaded tank cars or loaded intermodal portable tanks of any one or any combination of the hazardous materials identified in § 232.103(n)(6)(i)(B) of this chapter; or

(3) Transporting one or more car loads of rail-security sensitive materials (RSSM) as defined in § 1580.3 of this title.

(d) *Location of crewmember(s) when the train is moving.* A train crewmember that is not operating the train may be located anywhere outside of the operating cab of the controlling locomotive when the train is moving if:

(1) The train crewmember is on the train, except when the train crewmember cannot perform the duties assigned without temporarily disembarking from the train;

(2) The train crewmember and a locomotive engineer in the cab of the controlling locomotive can directly communicate with each other;

(3) The train crewmember can continue to perform the duties assigned; and

(4) The location does not violate any Federal railroad safety law, regulation, or order.

### § 218.125 Specific passenger and tourist train operation exceptions to crew size safety requirements.

The requirements in this subpart are not applicable to the following passenger and tourist train operations that are operated with a one-person train crew:

(a) The train is a tourist train operation that is not part of the general railroad system of transportation;

(b) A tourist train operation that is part of the general system of transportation or a passenger operation in which:

(1) The locomotive engineer is moving cars empty of passengers; and

(2) Passengers will not board the train's cars until the crew conducts a safety briefing on the safe operation and use of the train's exterior side doors, in accordance with § 238.135 of this chapter;

(c) A tourist train operation that is part of the general system of transportation or a passenger operation involving a single self-propelled car or married-pair unit, *e.g.,* an MU locomotive operation, where the locomotive engineer has direct access to the passenger seating compartment and (for passenger railroads subject to part 239 of this chapter) the passenger railroad's emergency preparedness plan for this operation is approved under § 239.201 of this chapter;

(d) A rapid transit operation in an urban area, *i.e.,* an urban rapid transit system that is connected with the general railroad system of transportation under the following conditions:

(1) The operation is temporally separated from any conventional railroad operations;

(2) There is an FTA-approved and designated State Safety Oversight (SSO) Agency that is qualified to provide safety oversight; and

(3) The operator has an FTA/SSO-approved Public Transportation Agency Safety Plan in accordance with parts 673 and 674 of this title; or

(e) Each passenger train operation with a one-person train crew established before June 10, 2024 with an approved passenger train emergency preparedness plan under part 239 of this chapter for the operation.

### § 218.127 Specific freight train exceptions to crew size safety requirements.

The requirements in this subpart are not applicable to the following freight

train operations that are operated with a one-person train crew:

(a) *Mine load out, plant dumping, or similar operation exception.* A unit freight train:

(1) Being loaded or unloaded in an assembly line manner;

(2) Located on a track that is temporarily made inaccessible from the general railroad system of transportation;

(3) Moving at a maximum authorized speed of 10 miles per hour or less;

(4) Not requiring the one-person train crewmember to operate a hand-operated switch, fill out paperwork, or call signal indications during the loading or unloading process; and

(5) If the operation is overseen by another person, typically in a tower or on the ground, requiring that person to have the capability of communicating with the one-person train crewmember operating the train.

(b) [Reserved]

**§ 218.129 Conditional exceptions based on compliance dates for Class II and III legacy freight train operations, certain other Class II and III freight railroad train operations, work train operations, helper service train operations, and lite locomotive train operations staffed with a one-person train crew.**

(a) *Application of this section.* A railroad is not required to comply with the requirements in this section for each one-person train crew operation subject to an exception covered by § 218.125 or § 218.127. The following train operations may be operated with a one-person train crew subject to the requirements in this subpart:

(1) Each Class II or III railroad's legacy one-person train crew freight operation that has been established for at least two years before June 10, 2024, may continue to operate with a one-person train crew, including continuing to transport hazardous materials of the types or quantities specified in § 218.123(c), if:

(i) No later than September 6, 2024, the railroad:

(A) Provides FRA with written notice, as specified by the requirements in paragraph (b) of this section; and

(B) Complies with the additional requirements in paragraphs (c)(1) and (2) of this section; and

(ii) No later than June 9, 2026, the railroad complies with the additional requirements in paragraph (c)(3) of this section.

(2) Each Class II or III freight railroad seeking to initiate a train operation staffed with a one-person train crew not transporting hazardous materials of the types or quantities specified in § 218.123(c) shall:

(i) Provide FRA with written notice, as specified by the requirements in paragraph (b) of this section before commencing the operation; and

(ii) Comply with the additional requirements in paragraph (c) of this section.

(3) Each railroad seeking to continue or initiate work train operations with a one-person train crew, including operations involving a work train traveling to or from a work site, shall:

(i) Limit this type of non-revenue service train that is used for the administration and upkeep service of the railroad so that it does not exceed 4,000 trailing tons;

(ii) No later than September 6, 2024, comply with the additional requirements in paragraphs (c)(1) and (2) of this section; and

(iii) No later than June 9, 2026, comply with the additional requirements in paragraph (c)(3) of this section.

(4) Each railroad seeking to continue or initiate helper service train operations with a one-person train crew, including operations involving a helper service train traveling to or from a work site, shall:

(i) No later than September 6, 2024, comply with the additional requirements in paragraphs (c)(1) and (2) of this section; and

(ii) No later than June 9, 2026, comply with the additional requirements in paragraph (c)(3) of this section.

(5) Each railroad seeking to continue or initiate a lite locomotive train operation staffed with a one-person train crew, excluding an MU locomotive operation, shall:

(i) No later than September 6, 2024, comply with the additional requirements in paragraphs (c)(1) and (2) of this section; and

(ii) No later than June 9, 2026, comply with the additional requirements in paragraph (c)(3) of this section.

(b) *Written notice requirements.* The written notice shall be submitted by email to *FRAOPCERTPROG@dot.gov* and, at a minimum, include the following:

(1) The name, title, address, telephone number, and email address of the primary person(s) to be contacted regarding the written notice and the operation;

(2) The location of the operation, with as much specificity as can be provided, as to the characteristics of the geographic area through which the trains will operate (*e.g.,* population density and proximity to environmentally sensitive areas), the terrain over which the trains will be operated, industries or communities served, and track segments, territories, divisions, or subdivisions operated over. For each legacy one-person train crew freight operation under paragraph (a)(1) of this section, the written notice must include business records or other written documents supporting that the legacy operation was established for at least two years before June 10, 2024. To establish a legacy one-person train crew freight operation, the railroad must provide evidence that the operation occurred at regular intervals under a set of defined procedures or conditions;

(3) The class(es) of track operated over, the method of operation, a list of the signal and train control systems, devices, and appliances installed and in operation, and a list of all active and passive highway-rail grade crossings, including crossing numbers;

(4) The locations of any track where the average grade of any segment of the track operated over is 1 percent or more over 3 continuous miles or 2 percent or more over 2 continuous miles;

(5) The maximum authorized speed of the operation;

(6) The approximate average number of miles and hours a one-person train crew will operate in a single tour of duty;

(7) The number and frequency of the trains involved, and the maximum number of cars and tonnage set for the operation, if any;

(8) Whether the one-person train crew operation is permitted to haul hazardous materials of any quantity and type, and the approximate percentage of carload traffic in the one-person train crew operation that is hazardous materials;

(9) Whether any limitations are placed on a person operating as a one-person train crew. Such limitations may include, but are not limited to, a maximum number of miles or hours during a single tour of duty, or limitations placed on a person in coordination with a fatigue mitigation plan;

(10) Information regarding other operations traveling on the same track as the one-person train operation or that travel on an adjacent track. Such information shall include, but is not limited to, the volume of traffic and the types of opposing moves (*e.g.,* passenger trains or freight trains hauling hazardous materials);

(11) A detailed description of any technology that is used to perform tasks typically performed by a second crewmember, or that prevents or mitigates the consequences of accidents or incidents;

(12) A copy of any railroad rule or practice that applies to the one-person

train crew operation, but does not apply to train crew operations with two or more crewmembers;

(13) For each railroad seeking to continue a legacy freight train operation staffed with a one-person train crew as permitted by paragraph (a)(1) of this section, five (5) years of accident and incident data, as required by part 225 of this chapter, for the operation identified or, for operations established less than five (5) years before June 10, 2024, accident and incident data for the operation from the date the operation was established; and

(14) Any other information describing protections provided in lieu of a second train crewmember, or relevant data or analysis, or both, that the railroad can provide about its one-person train crew operation and how that operation is as safe or safer than a two-person minimum train crew operation.

(c) *Additional requirements.* Each railroad with an applicable one-person train crew operation shall:

(1) Adopt and comply with an operating rule that satisfies the requirements of this paragraph to ensure rail employees can take mitigation measures that provide a level of safety that is as safe or safer than a two-person train crew operation to address certain situations with the one-person train crew operation.

(i) At a minimum, the operating rule shall address the following types of situations:

(A) An accidental or non-accidental release of any hazardous material;

(B) An accident/incident regardless of whether it is required to be reported to FRA under part 225 of this chapter;

(C) A request from an emergency responder to unblock a highway-rail grade crossing in response to a potentially life-threatening situation;

(D) A train or on-track equipment derailment;

(E) A disabled train; and

(F) An illness, injury, or other incapacitation of the one-person train crewmember.

(ii) At a minimum, the operating rule shall:

(A) Describe the role and responsibilities of the one-person train crewmember and any other railroad employees, including supervisors, with responsibility to address a situation described in paragraph (c)(1)(i) of this section; and

(B) Describe any logistics and the railroad's expected response time(s).

(2) Adopt and comply with an operating rule that satisfies the requirements of this paragraph to ensure radio or wireless communications with a one-person train crew is as safe or safer than a two-person train crew for train operations and crewmember safety. At a minimum, the operating rule shall require that:

(i) The one-person train crew have a working radio or working wireless communications on the controlling locomotive appropriate for railroad communications as defined in § 220.5 of this chapter, even if not otherwise required in § 220.9 of this chapter;

(ii) The train dispatcher or operator must confirm with a one-person train crewmember that the train is stopped before conveying a mandatory directive by radio transmission as required in § 220.61 of this chapter;

(iii) A one-person train crewmember must contact a railroad employee, typically a dispatcher, a supervisor or manager, or an intermittently assisting crewmember, whenever it can be anticipated that radio or wireless communication could be lost, *e.g.,* before the train enters a tunnel, unless technology or a different protocol is established to monitor the train's real-time progress; and

(iv) Procedures that establish when search-and-rescue operations shall be initiated if all radio or wireless communication is lost with a one-person train crewmember.

(3) Adopt and comply with an operating rule that satisfies the requirements of this paragraph to ensure:

(i) A one-person train crew's controlling locomotive is equipped with a functioning alerter that is operating as intended as defined in § 229.5 of this chapter. For each railroad that limits the one-person train crew's operation to a maximum authorized speed of 25 miles per hour and is not required to have an alerter on the locomotive that is equipped per the requirements in § 229.140 of this chapter, any functioning alerter that is operating as intended will be acceptable if it has a manual reset and will result in a penalty brake application that brings the locomotive or train to a stop if not properly acknowledged; and

(ii) That a one-person train crewmember must test that alerter to confirm it is functioning before departure from each initial terminal, or prior to being coupled as the lead locomotive in a locomotive consist.

**§ 218.131 Special approval petition requirements for train operations staffed with a one-person train crew.**

(a) *General.* With the exception of operations permitted under §§ 218.125 through 218.129, and as provided in paragraph (a)(2) of this section:

(1) No railroad may operate a train with a one-person train crew unless it receives special approval for the operation under this subpart.

(2) For a railroad that has established a one-person train crew operation before June 10, 2024, the railroad may continue the operation in accordance with this section pending FRA's decision on the railroad's special approval petition if:

(i) The railroad submits a written notice by email to *FRAOPCERTPROG@dot.gov* no later than June 24, 2024 that, at a minimum, provides a summary of the operation and the name, title, address, telephone number, and email address of the primary person(s) to be contacted regarding the written notice and the operation;

(ii) The railroad, in coordination with FRA, eliminates, mitigates, or otherwise addresses any safety hazards related to the one-person train crew operation FRA finds in reviewing the railroad's special approval petition; and

(iii) The railroad submits its special approval petition, as specified by the requirements in paragraph (b) of this section, no later than August 7, 2024.

(3) Each freight railroad seeking to either initiate or continue a train operation with a one-person train crew must receive FRA's special approval for the operation under this subpart and shall comply with the requirements in § 218.129(c).

(4) Each passenger railroad seeking to initiate a train operation with a one-person train crew must receive FRA's special approval for the operation under this subpart and have either:

(i) An approved passenger train emergency preparedness plan under part 239 of this chapter for the operation; or

(ii) An approved waiver from the passenger train emergency preparedness plan requirements as permitted under part 211 of this chapter. A passenger railroad may petition FRA for both a waiver under part 211 and special approval for a train operation staffed with a one-person train crew in the same filing.

(b) *Petition for a train operation staffed with a one-person train crew.* Each petition for a train operation with a one-person train crew that is not permitted under §§ 218.125 through 218.129 must contain sufficient information for FRA to determine whether approving the operation described in the petition is as safe or safer than a two-person minimum train crew operation. At a minimum, a petition must include:

(1) The name, title, address, telephone number, and email address of the primary person to be contacted

regarding review of the special approval petition;

(2) The location of the operation, with as much specificity as can be provided, as to the characteristics of the geographic area through which the trains will operate (*e.g.* population density and proximity to environmentally sensitive areas), the terrain over which the trains will be operated, industries or communities served, and track segments, territories, divisions, or subdivisions operated over;

(3) The class(es) of track to be operated over, the method of operation, a list of the signal and train control systems, devices, and appliances installed and in operation, and a list of all active and passive highway-rail grade crossings, including crossing numbers;

(4) The locations of any track where the average grade of any segment of the track operated over is 1 percent or more over 3 continuous miles or 2 percent or more over 2 continuous miles;

(5) The maximum authorized speed of the operation;

(6) The approximate average number of miles and hours a person is projected to operate as a train crewmember in a one-person train crew operation;

(7) The maximum number of cars and tonnage proposed for the operation, if any;

(8) Whether the railroad is seeking approval to transport hazardous materials of the types or quantities specified in § 218.123(c) or whether the railroad is seeking approval to transport other hazardous materials (as defined by § 171.8 of this title) of any quantity and type;

(9) Whether any limitations will be placed on a person operating as a one-person train crew. Such limitations may include, but are not limited to, a maximum number of miles or hours during a single tour of duty, or limitations placed on a person in coordination with a fatigue mitigation plan;

(10) Information regarding other operations that may travel on the same track as, or an adjacent track to, the train operation staffed with a one-person train crew. Such information shall include, but is not limited to, the volume of traffic and the types of opposing moves (*e.g.,* passenger or freight trains hauling hazardous materials);

(11) A detailed description of any technology that will be used to perform or support tasks typically performed by a second crewmember, or that will prevent or significantly mitigate the consequences of accidents or incidents;

(12) A copy of any railroad rule or practice that will apply to the proposed train operation(s) with a one-person train crew, but does not apply to train crew operations with two or more crewmembers;

(13) A copy of a railroad operating rule that will apply to the proposed train operation(s) with a one-person train crew, and which complies with the requirements of § 218.129(c)(1), to ensure rail employees can take mitigation measures that provide a level of safety that is as safe or safer than a two-person train crew operation to address certain situations with the one-person train crew operation. A passenger train operation with an approved emergency preparedness plan under part 239 of this chapter satisfies the requirement in this paragraph (b)(13);

(14) Five (5) years of accident and incident data, as required by part 225 of this chapter, for the operation identified in paragraph (b)(2) of this section, when operating with two or more crewmembers, or, for operations established less than five (5) years before June 10, 2024, accident and incident data for the operation from the date the operation was established;

(15) A risk assessment of the proposed operation that meets the requirements of § 218.133;

(16) Any other information describing protections provided in lieu of a second train crewmember, or other relevant data or analysis.

(c) *Additional information.* FRA may request any additional information, beyond what is provided in the petition, that it deems necessary.

**§ 218.133 Risk assessment content and procedures.**

(a) *General.* A risk assessment submitted under this subpart must meet the following requirements:

(1) Contain a list and descriptions of all functions, duties, and tasks associated with the proposed operation to be performed by the one-person train crewmember, other railroad employee(s), or equipment, including, at a minimum, any function performed:

(i) To prepare a train for operation (including, but not limited to, pre-departure inspections, obtaining track bulletins, orders, or manifests, managing the train consist, including train makeup, obtaining and ensuring the accuracy of the train consist, arming and testing the end-of-train device, and performing brake tests);

(ii) To operate a train (including, but not limited to, operating and controlling the train, interacting with non-crewmembers such as the dispatcher or roadway workers, and responding to emergencies or unexpected events); and

(iii) To ensure safety once a train has stopped moving (*e.g.,* including, but not limited to, securing the train).

(2) Describe the allocation of all functions, duties, and tasks to the one-person train crewmember, other railroad employee(s), or equipment.

(3) Contain a risk-based hazard analysis for the proposed train operation's functions, duties, and tasks, that shall:

(i) Identify any new hazards, changes to existing hazards and/or changes to the risk of an existing hazard associated with the proposed train operation, as compared to a two-person minimum train crew operation, taking account of all aspects of the railroad's system, including, at a minimum, infrastructure, equipment, technology, work schedules, mode of operation, operating rules and practices, training and other areas impacting railroad safety;

(ii) Calculate and/or update each risk, quantitatively or qualitatively, or both, by assessing each new hazard, change to an existing hazard and/or change to the risk of a hazard, in terms of the severity and likelihood of a mishap;

(iii) Recalculate each risk mitigated in accordance with § 218.131(b)(15), quantitatively or qualitatively, or both, by assessing each new hazard, change to an existing hazard and/or change to the risk of a hazard and the level of mitigation (elimination or reduction), in terms of the severity and likelihood of a mishap; and

(iv) Provide a statement with supporting evidence that the one-person train crew operation with a fully implemented mitigation plan is as safe or safer than a two-person minimum train crew operation.

(4) Contain a mitigation plan that documents the design and implementation timeline of the sustained mitigation strategies to eliminate or reduce the overall risk to a level such that the one-person train crew operation is as safe or safer than a two-person minimum train crew operation, considering, at a minimum, the following:

(i) The design of the system, equipment, and components, including equipment reliability and the necessary functions to be performed, in both a normal operation and in a degraded or failed state; and

(ii) The human factors associated with the processes and tasks to be performed, including the required skills and capabilities, the operating environment, and existing or potential impairments.

(b) *Alternative standard.* A railroad may petition the Associate

Administrator for Safety for approval to use alternative methodologies or procedures, or both, other than those required by paragraph (a) of this section to assess the risk associated with an operation proposed under this section. If, after providing public notice of the request for approval and an opportunity for public comment on the request, the Associate Administrator for Safety finds that any such petition demonstrates that the alternative proposed methodology or procedures, or both, will provide an accurate assessment of the risk associated with the operation, the Associate Administrator for Safety may approve the use of the proposed alternative(s).

**§ 218.135 Special approval procedure.**

(a) *Petition.* Each railroad submitting a petition under § 218.131 shall send the petition by email to *FRAOPCERTPROG@dot.gov.* FRA will make the petition publicly available at *https://www.regulations.gov.*

(b) ***Federal Register*** *notice.* FRA will publish a notice in the **Federal Register** concerning each petition under § 218.131.

(c) *Comment.* Not later than 60 days from the date of publication of the notice in the **Federal Register** under paragraph (b) of this section, any person may comment on the petition.

(1) Each comment shall provide all relevant information and data in support of the commenter's position.

(2) Each comment shall be submitted to FRA through *https://www.regulations.gov* to the docket identified in the **Federal Register** notice.

(d) *Disposition of petitions.* (1) If the Administrator finds it necessary or desirable, FRA will conduct a hearing on a petition in accordance with its rules of practice in part 211 of this chapter.

(2) A petition must not be implemented until approved. If FRA finds that the petition complies with the requirements of § 218.131 and that approving the petition is as safe or safer than a two-person minimum train crew operation, FRA will grant the petition, normally within 120 days of its receipt. If the petition is neither granted nor denied within 120 days, the petition remains pending for decision. FRA may attach special conditions to the approval of the petition. Following the approval of a petition, FRA may reopen consideration of the petition for cause stated.

(3) If FRA finds that a petition does not comply with the requirements of this subpart or that approving the petition would not be as safe or safer than a two-person minimum train crew operation, FRA will deny the petition, normally within 120 days of its receipt.

(4) When FRA decides a petition, reopens consideration of a petition, or closes a reopened petition, FRA will send written notice of the decision to the petitioner and publish that decision in the docket.

(e) *Modifications.* (1) A railroad that intends to materially modify an operation subject to an FRA approval under this section shall submit a description of how it intends to modify the operation, along with either a new or an updated risk assessment accounting for the identified proposed modifications. The new or updated risk assessment must meet the requirements of § 218.133 and be submitted by email to *FRAOPCERTPROG@dot.gov* at least 60 days before the date proposed to implement any such modification. For the purposes of this paragraph (e), a material modification is a change:

(i) To a railroad's operations, infrastructure, locomotive control technology, or risk mitigation technology, that may affect the safety of the operation;

(ii) That would affect the assumptions underlying the risk assessment on which an FRA approval under this section is based; or

(iii) That would affect the assumptions underlying the risk assessment's risk calculations or mitigations on which an FRA approval under this section is based.

(2) When FRA decides on a material modification to a petition, FRA will send written notice of the decision to the petitioner and publish that decision in the same docket created for the petition in paragraph (a) of this section. FRA may reopen consideration of a petition based on a material modification, deny the material modification, or grant the material modification with or without special conditions to the approval. A material modification must not be implemented until approved. If the material modification submission is neither granted nor denied within 60 days, the petition remains pending for decision.

**§ 218.137 Annual railroad responsibilities after receipt of special approval.**

(a) Each railroad that receives special approval to use an operation with a one-person train crew under this subpart shall prepare an annual report, which will be a formal review and analysis each calendar year, of the one-person train crew operation. The annual report, which will include a railroad's findings and conclusions from its review, shall be submitted no later than March 31 of the following year to *FRAOPCERTPROG@dot.gov.* The requirements in paragraphs (b) and (c) of this section describe the components of a railroad's annual report.

(b) A railroad's annual report must include the safety data and information listed in paragraphs (b)(1) and (2) of this section for any one-person train crew operation that receives special approval under this subpart.

(1) The total number of:

(i) FRA-reportable accidents/incidents under part 225 of this chapter, including subtotals for accidents/incidents that occurred at a highway-rail grade crossing and those that did not occur at a highway-rail grade crossing, and subtotals by State and cause. If an accident/incident was FRA-reportable for more than one reason (*e.g.,* the accident/incident occurred at a highway-rail grade crossing and resulted in rail equipment damages higher than the current reporting threshold), the accident/incident shall only be listed once in the total calculation;

(ii) FRA-reportable employee fatalities;

(iii) FRA-reportable employee injuries;

(iv) Trespasser fatalities at a highway-rail grade crossing;

(v) Trespasser injuries at a highway-rail grade crossing;

(vi) Passenger fatalities at a highway-rail grade crossing;

(vii) Passenger injuries at a highway-rail grade crossing;

(viii) Instances where a railroad employee did not comply with a railroad rule or practice applicable to the one-person train crew operation receiving special approval under this subpart but not applicable to train crew operations with two or more crewmembers that travel on the train;

(ix) Instances where a one-person train crewmember had a locomotive engineer or conductor certification revoked for violation of an operating rule or practice that occurred when the person was operating a one-person train crew operation receiving special approval under this subpart. In addition to the total number of these instances, the railroad must report the subtotals for each type of certification revoked;

(x) Accountable rail equipment accidents/incidents under part 225 of this chapter;

(xi) Instances when the railroad was required to comply with an operating rule to ensure rail employees can take mitigation measures that provide a level of safety that is as safe or safer than a two-person train crew operation to address certain situations with the one-

person train crew operation under § 218.131(b)(13);

(xii) Instances when a dispatcher, operator, or other required employee unexpectedly lost communication with the one-person train crew operation receiving special approval under this subpart;

(xiii) Employee hours worked; and

(xiv) Train miles.

(2) For each instance counted in the totals reported in paragraphs (b)(1)(i) through (xii) of this section, a railroad's annual report must clearly identify each instance by date and location and provide a complete factual description of the event.

(c) The annual report must also include written confirmation that the risk assessment for operations receiving special approval under this subpart, including all calculations and assumptions, remains unchanged and that no technology changes have been implemented or new or additional hazards identified.

(1) If any risk assessment calculation or assumption changes for an operation receiving special approval under this subpart, a new or updated risk assessment meeting the requirements of § 218.133 must be prepared and submitted with the railroad's annual report. This annual reporting requirement does not negate the requirement to submit a new or updated risk assessment when making a material modification to an operation as required in § 218.135.

(2) Any new or updated risk assessment submitted in accordance with paragraph (c) of this section must include a written plan and schedule for implementing any mitigations required to address any newly identified hazards.

(d) FRA will review and respond to a railroad's annual report submission in accordance with paragraph (a) of this section by September 30 of the year it is submitted.

(1) FRA's response may include advice or recommendations; and

(2) For a one-person train crew operation receiving special approval under this subpart, FRA may reopen consideration of a petition under § 218.135 based on a finding that a railroad's annual report submission suggests that the petition does not comply with the requirements of this subpart or that the operation is no longer as safe or safer than a two-person train crew operation.

■ 6. Add appendix E to part 218 to read as follows:

## Appendix E to Part 218—Recommended Procedures for Conducting Risk Assessments

A railroad petitioning to operate with a one-person train crew in accordance with § 218.133 must prepare a risk-based hazard analysis that quantitatively and/or qualitatively demonstrates that the proposed operation using a one-person train crew will be as safe or safer than an operation using a two-person train crew under normal operation and in a degraded or failed state. This appendix provides one approach that may be used by a railroad to prepare a risk-based hazard analysis and compare the risks to determine if a proposed one-person train crew operation will be as safe or safer than a two-person minimum train crew operation, when all mitigations are in place. A railroad is not restricted to this approach and may use another formal safety methodology that fulfills the requirements of § 218.133.

### Quantitative Risk-Based Hazard Analysis

(a) Identify new hazards, changes to existing hazards or changes to the risk of existing hazards of the one-person train crew operation, as compared to a two-person minimum train crew operation, as provided in § 218.133(a)(3)(i).

(b) Calculate and/or update each risk of the one-person train crew operation, as compared to a two-person minimum train crew operation, by assessing each new hazard, change to an existing hazard and/or change to the risk of an existing hazard, in terms of the severity and likelihood of potential events using the following framework:

(1) The assessment of the severity is measured as the worst-credible mishap resulting from the hazard and categorized in accordance with Table 1 of this paragraph (b)(1):

TABLE 1 TO PARAGRAPH (b)(1)

| Category | Severity ranking (1 being the most severe) | Definition |
|---|---|---|
| **SEVERITY CATEGORIES** | | |
| Catastrophic | 1 | Results in one or more of the following: fatality, irreversible significant environmental damage, or significant monetary loss. Accidents/incidents that must be reported to FRA telephonically under § 225.9 of this chapter are considered catastrophic. |
| Critical | 2 | Results in one or more of the following: significant injury (as defined in § 225.5 of this chapter), reversible significant environmental damage, or reportable monetary loss. Accidents/incidents that are not telephonically reported under § 225.9 of this chapter but are still FRA-reportable under § 225.19 of this chapter, are considered critical. |
| Marginal | 3 | Results in one or more of the following: minor injuries (i.e., injuries that are not significant as defined in § 225.5 of this chapter), reversible non-significant environmental damage, or monetary loss. Mishaps that are not FRA-reportable accidents/incidents but are considered accountable rail equipment accidents/incidents as defined in § 225.5 of this chapter, are considered marginal. |
| Negligible | 4 | Results in one or more of the following: no injuries, no environmental damage, or equipment or railroad structure damage(s) that do not require repair. |

(2) The assessment of probability of occurrence as defined in Table 2 of this paragraph (b)(2):

TABLE 2 TO PARAGRAPH (b)(2)

| Description | Level | Qualitative characterization of probability | Quantitative characterization of probability [1] |
|---|---|---|---|
| **PROBABILITY LEVELS** | | | |
| FREQUENT | A | Likely to occur frequently | Greater than once every 1,000 operating hours. |
| PROBABLE | B | Likely to occur several times | Between once every 1,000 hours and once every 100,000 hours. |
| OCCASIONAL | C | Likely to occur once, but not several times | Between once every 100,000 hours and once every 10,000,000 hours. |
| REMOTE | D | Unlikely but possible to occur | Between once every 10,000,000 hours and once every 1,000,000,000 hours. |
| IMPROBABLE | E | So unlikely that it can be assumed the occurrence may not be experienced. | Less than once every 1,000,000,000 hours. |

[1] Probability of a hazard occurring per 1,000 operating hours.

(c) Applying the sustained mitigation strategies designed and implemented in accordance with § 218.133(a)(4), recalculate the risk using the framework documented in paragraph (b) of this appendix.

(d) Prepare a risk matrix in the format of Table 3 of this paragraph (d) that classifies the risks calculated in paragraph (c) of this appendix in terms of severity and likelihood of each new hazard, change to an existing hazard, or change to the risk of an existing hazard as follows:

TABLE 3 TO PARAGRAPH (d)

| Probability | Severity | | | |
|---|---|---|---|---|
| | (1) Catastrophic | (2) Critical | (3) Marginal | (4) Negligible |
| **Risk Matrix** | | | | |
| (A) FREQUENT | 1A | 2A | 3A | 4A |
| (B) PROBABLE | 1B | 2B | 3B | |
| (C) OCCASIONAL | 1C | 2C | 3C | 4C |
| (D) REMOTE | 1D | 2D | 4D | |
| (E) IMPROBABLE | 1E | 3E | 4E | |

(e) Prepare a risk report of the train operation staffed with a one-person train crew, as compared to a two-person minimum train crew operation, documenting the basis for acceptability of all new hazards, changes to existing hazards and/or changes to the risk of existing hazards identified in the matrix required by paragraph (d) of this appendix. The risk report should categorize the risk of each new hazard, change to existing hazard and/or change to the risk of an existing hazard as follows:

(1) *Unacceptable.* Categories 1A, 1B, 1C, 1D, 2A, 2B, 2C, 3A, 3B, and 4A are unacceptable. A railroad should not file a petition for special approval with a new hazard, change to existing hazard and/or change to the risk of an existing hazard in this category as FRA will not approve an operation with a partially mitigated or unmitigated hazard that is categorized as unacceptable;

(2) *Acceptable under specific conditions.* Categories 1E, 2D, 3C, 3D, 4B, and 4C are acceptable under specific conditions. A railroad's risk report should describe why the railroad finds the conditions acceptable. A new hazard, change to existing hazard and/or change to the risk of an existing hazard will be acceptable under specific conditions if FRA finds that the one-person operation is as safe or safer than a two or more-person operation; and

(3) *Acceptable.* Categories 2E, 3E, 4D, and 4E are acceptable. FRA will not deny a petition for special approval solely on the basis an appropriately categorized acceptable new hazard, change to existing hazard and/or change to the risk of an existing hazard if the one-person operation is as safe or safer than a two-person minimum operation.

(f) Provide a statement with supporting evidence, that the one-person operation with a fully implemented mitigation plan, is as safe or safer than a two-person minimum operation.

**Amitabha Bose,**

*Administrator.*

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