



Railroad Safety Advisory Committee



Appropriate Train Crew Size

to the

49th Railroad Safety Advisory Committee Meeting

August 29, 2013
Washington, DC

Task No.13-05

- **Appropriate Train Crew Size- Task No.: 13-05**
- **Purpose:**
 - Evaluate whether and how crew redundancy affects railroad safety.
 - Evaluate types of railroad services or operations requiring redundant crew members.
 - Evaluate whether there are acceptable methods to provide redundancy if redundancy is deemed necessary.
 - Evaluate whether there is an appropriate train crew size for both passenger and freight operations necessary to assure railroad safety.

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- Review the following regulations and documents to evaluate whether and how crew size impacts railroad safety:
 - 49 CFR Part 218 Subpart B, Blue Signal Protection of Workers.
 - 49 CFR Part 219, Control of Alcohol and Drug Use.



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- 49 CFR Part 220 Subpart B, Radio and Wireless Communication Procedures.
- 49 CFR Part 220 Subpart C, Electronic Devices.
- 49 CFR Part 221, Rear End Marking Device- Passenger, Commuter and Freight Trains.
- 49 CFR Part 232, Brake System Safety Standards for Freight and Other Non-Passenger Trains and Equipment; End-of-Train Devices.
- 49 CFR Part 238, Passenger Equipment Safety Standards.



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49 CFR Part 239 Passenger Train Emergency Preparedness

- This regulation was predicated on a train crew consisting of a locomotive engineer and at least one other crewmember stationed in the body of the train;
- The on board crew member typically handles:
 - Passenger evacuation;
 - Immediate medical needs;
 - Initial Emergency Response (incident command);
 - Locating passengers with special needs and communicating the information to control and responders;
 - Securing the train;
 - And more depending on the situation.

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Passenger trains operate in various physical environments, including:

- Multiple at-grade highway-rail crossings
- Large bridge structures
- Tunnels
- Long distances between outlying stations
- Varying station configurations ie: high platforms, low platforms, station GAPS, stations on curves, etc.
- Multiple train operations in each direction
- Shared rights-of-way with freight rail operations



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- 49 CFR Part 240, Qualification and Certification of Locomotive Engineers.
- 49 CFR Part 242, Qualification and Certification of Conductors.
- Final Report on Human Factors in Railroad Operations – Cognitive and Collaborative Demands of Freight Conductor Activities: Results and Implications of a Cognitive Task Analysis (July 2012).
- Transportation Research Board Circular – Teamwork in U.S. Railroad Operations (December 2011)

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Issues requiring specific report:

- Report on whether there is a safety benefit or detriment from crew redundancy, including an analysis of observed safety data and outcomes from current crew deployment practices..
- Review existing regulations and consider the impact of crew size on the performance of any task or activity.

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Issues requiring specific report:

- Report on the costs and benefits associated with crew redundancy. Review existing regulations and consider the impact of crew size on the performance of any task or activity.

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Issues requiring specific report:

- If appropriate, develop recommended regulatory language or guidance documents regarding crew size requirements that enhance the safety of railroad operations by providing enhanced regulatory redundancy. In considering the development of regulatory language, specifically consider the value of regulatory redundancy in terms of crew size as it relates to trains or vehicles identified by the group responsible for task no. 13-02 as requiring special handling and/or operational controls, and if appropriate develop recommended regulatory language specific to these railroad operations.

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Other Issues:

- Consider the appropriate role and impact of technological advances on crew size and crew deployment and incorporate these into any recommendation developed. Consider PTC and Remote Control Operations or other operations where crew deployment practices or the use of technology may enhance the safety of operations.

Target Dates: Report recommendations to the Committee by April 1, 2014.