

**American Railway Engineering and Maintenance of Way Association
Letter Ballot**

1. Committee and Subcommittee:

Committee 27, Subcommittee 5

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4. Ballot Item: Approval of 1.5 Equipment Operators Training and Certification

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SECTION 1.5 EQUIPMENT OPERATORS TRAINING AND CERTIFICATION

– 2009 –

Reviewed and Approved by Sub Committee 07-20-22

1.5.1 INTRODUCTION (2009)

The training of operators for railway maintenance and construction equipment is conducted for the purpose of improving the safety profile, the efficiency, and the productivity of track maintenance equipment. The capital investment required to own and operate this equipment, coupled with the requirement to achieve production and maintenance goals within decreasing availability of track time windows demands competent operators with the training and skills to maximize the efficiency of these assets.

1.5.2 OPERATOR TRAINING METHODS - BACKGROUND and Definitions (2009)

- a. **OJT** or "on-job training" has traditionally been the fundamental method used by railways as labor skills were supplemented by equipment. This method typically consists of either no, or only rudimentary, instruction to the new operator. In the short term, this method can be effective for less complex pieces of equipment.

Reference FRA 243.101 Employer Program Required Sub Section D Thru F & FRA 243.103 Training Components Identified in Program

- b. **formal training** has become a minimum necessity as track maintenance equipment has increased in complexity and the time available for program rework and equipment maintenance has minimized. Differing levels of expertise can be gained by the operator using Operator-Instructors and/or manufacturer representatives as trainers. While more complete than "on-job training", this method suffers from not providing comprehensive instruction in a variety of operating conditions.

Reference FRA243.105 Optional model program development & Training program submission, introductory information required

- c. **Advanced training** is a hybrid and generally couples informal field training with equipment videos and classroom training. However, the training is not concurrent and it is generally not application specific. It is a combination of "firsthand" practice to develop correct technique, followed later by lectures and provided related reference materials for the operator.

Reference FRA 243.111 Approval of Programs and Process

- d. **Certified training** programs begin with established goals, have comprehensive and concurrent practical and theoretical sessions, and evaluate the newly trained operator to dually determine learned skills and effectiveness of the program. These programs are typically multi-day, and can be taught by railroad trainers, representatives of a manufacturer, or a third-party training specialist. These can be held either on railroad property or at dedicated training facilities. Formal documentation shall be provided.

Reference FRA 243.111 Approved training programs filed by training organizations and learning institutions

- e. **Recurrent training** takes the training program and expands it to occur periodically, to reinforce correct operating and maintenance techniques. Various forms of this exist on different properties, utilizing a variety of training formats, information sources, and training aids. This is the only method which addresses the problem area of an increasing pace of change to operating and maintenance procedures that utilize the latest training methods.

Reference FRA243.109 Training submission, review, and approval process

1.5.3 CANDIDATE SELECTION AND CLASS SIZE CRITERIA (2009)

- a. The selection of potential equipment operators should consider the work history and experience of the individual. Items such as past injury exposure, safe working habits, and personal attitude are indicative of potential success of the employee in the training program.
- b. Past equipment experience is an obvious desirable objective attribute. Should the individual be able to demonstrate maintenance responsibilities and operating capabilities with similar equipment, the probability of acquiring additional skills from training programs is high. In cases of specialized equipment where there may not be any similar experience for the new operator, aptitude testing can provide significant guidance if relevant criteria are utilized.
- c. A subjective attribute which is typically a determinant of success is a desire to improve on behalf of the employee. A cheerful outlook and "wanting to learn" are perhaps the most important indicators of a potential training success. While modern roadway maintenance equipment is more user-friendly, it also has more features and requires more knowledge to operate safely and effectively.
- d. For the group to be trained, the trainee-to-trainer ratio should not exceed twelve to one for a classroom session. For practical training with equipment at a work site, half of that ratio should be the maximum. While that ratio may seem high for certain types of equipment, the trainer should interface individually with each student for specific instruction, allowing the others to observe and learn through the repetitive process.

Reference 243.107 Training Program Submission Introductory Information Required and FRA243.201 Employee qualification

1.5.4 OPERATOR TRAINING PROGRAM REQUIREMENTS (2009)

- a. Training programs have cost and benefit elements associated with them and must be budgeted accordingly.
- b. Each training program must have established goals. Safety and minimization of injury occurrences are always paramount in these goals, as are reduction of damages to railway assets and property. The instructional goals must be application-specific, critical skill-based, and relevant to both the work conditions encountered and the level of operating and maintenance capability of the trainee.
- c. Following these goals, the development of a custom training manual should be undertaken. As opposed to a copy of an available operating manual, it should be designed for specific tasks in line with the established goals and be brief and easily understandable to the student. The training manual must cover both the theoretical aspect of the program during the training, and function as a resource for the trained operator following completion of the program.
- d. Practical, or "firsthand", training within a variety of operating situations is imperative. This eliminates the "trial and error" technique which can generate poor operating and maintenance learned skills. Further, instructor corrections during practical training reduce the operator learning curve and discourage the development of poor equipment maintenance practices. "Hand on" training should also include automation training, specifically the proper set-up of computer-assisted track maintenance machines. In practical training it is important that as few distractions as possible are allowed, and that similar equipment, or an appropriate simulator, be used during the training.
- e. Determination of what was learned in the training is important for both the employee and the trainer. The only way to measure this objectively is to pre-test the employee for skills or knowledge, and to follow the training program with a comprehensive examination to determine knowledge gained. In most cases a practical demonstration of learned skills in accord with the program goals should suffice. However, with more complicated machinery it may also be appropriate to evaluate learned knowledge with a combination of written testing and a practical demonstration of proficiency.
- f. On the trainer's behalf, the result of the testing should give clues as to which parts of the program or curriculum is weak or strong, such that appropriate adjustments can be made prior to the next group of trainees. Another particularly important part of the feedback loop for the trainer is a formal course evaluation by the students regarding content. Equipment supervisory employees should be utilized to provide feedback to determine if learned skills are being

practiced by the operator in the work environment. The latter can be done informally but is an important source of feedback information for the design of future programs.

- g. Certification of the trained operator includes all those requirements involved with documentation of the training program. Initial certification is a key step in the training process, and subsequent levels of certification should be established such that an operator can progress through a series of training programs. A training time limit should be established to determine when specific retraining is necessary, and that schedule distributed among affected operators.
- h. It is desirable that labor agreements reflect program needs of selecting capable employees and placing trained personnel according to the individual's ability.
- i. These guidelines should be set to adhere to existing policies and standards as applicable to the individual railroad.

Reference FRA 243.105 Optional Model Program, FRA 243.107 Training Program Introductory Information and FRA 243.109 Training program submission and review.

1.5.5 RETRAINING AND RECERTIFICATION (2009)

With track maintenance equipment changing at an ever-increasing rate and with continuing reductions in maintenance fleet size, a recurrent training and recertification process for experienced operators can be as important as original training and certification for new operators. Reinforcement of correct operating and maintenance techniques is critical to be effective and productive in maintaining the roadway. Periodic practical reviews of competency designed to maximize production time and minimize repair expenses, and to eliminate injuries and lost time due to accidents, should be encouraged by the establishment of criteria associated with successive levels of recertification.

The documentation of recertification and recurrent training is a valuable tool for gauging the value of each training session on the capabilities of operators. Mandatory certification and recertification are a tool that is making the industry safer, more dependable, and accountable.

Reference FRAS 243.111 Approval of Programs filed by Training Organizations and Learning Institutions and Subpart C Program Implementation and Oversight and FRA 243.201 Employee Qualifications Requirement