

NOTICE OF SAFETY DIRECTIVE 97-1 - Evaluation of operational tests and inspections and to ensure that safety-critical DTC information is accurately conveyed and acknowledged.

On June 30, 1997, FRA published Notice of Safety Directive 97-1 in the Federal Register (Vol. 62, No.125, Page 35330), addressing safety practices to evaluate the integrity of all railroads' program of operational tests and inspections and to ensure that safety critical information is accurately conveyed and acknowledged for operations in Direct Train Control¹ (DTC) territory.

FRA has determined that the safety of railroad employees and the general public compels the issuance of this safety directive. A review of FRA's accident/incident data demonstrates that the safety of rail transportation has continued to improve; however, two recent train accidents, one on CSX Transportation (CSX) in St. Albans, West Virginia, on June 7, 1997, and the other on the Union Pacific Railroad (UP) in Devine, Texas, on June 22, 1997, have claimed a total of five lives, and have caused FRA serious concern about the safety of certain aspects of rail transportation. Specifically, FRA is concerned about possible gaps in existing train control systems that, due to inadequate operational testing or deficient operational procedures, can lead to train collisions. In response, FRA has initiated an in-depth and comprehensive analysis of the operational tests and inspections programs and dispatching procedures employed by CSX and UP. FRA inspection teams are on those properties to conduct safety assurance reviews on all aspects of these issues.

Operational Tests and Inspections: Subsequent to the CSX train accident, an initial analysis of CSX's operational tests and inspections program raised questions about the adequacy of the quality controls necessary to accomplish the objectives of 49 CFR 217.9. FRA's preliminary findings from an inspection of CSX's program of operational tests and inspections indicated that while the program itself was detailed and comprehensive, CSX's implementation of the program fell short of the intended objectives. While the program's provisions with respect to the number of tests supervisors are required to conduct each month are typically met, the quality of those tests performed is suspect. For example, FRA found that supervisors generally conduct testing at a single location, rather than at a variety of locations across the territory. Additionally, most of the required tests are typically conducted during one- or two-day periods rather than throughout the month. Consequently, FRA's initial findings indicate that the operational tests and inspections program appears to be a numbers-generating exercise that precludes any meaningful analysis of the results by CSX. Operational tests and inspections programs are intended to achieve the following objectives:

- o Improve employee compliance with railroad operating rules;
- o Measure rules proficiency, in order to isolate areas of non-compliance for corrective action;
- o Reduce human factor accidents;

¹This is an umbrella term and refers to methods of operation known variously as Direct Traffic Control, Track Warrant Control (TWC), Track Permit Control Systems (TPCS), Form D control system (DCS), and similar methods of authorizing train movements.

- o Reduce personal injuries and incidents resulting from inattention to the requirements of the railroad's operating rules;
- o Provide the railroad with information on rules requiring supplemental employee training;
- o Provide the railroad supervisor with an immediate evaluation of an employee's application, comprehension, and compliance with the rules; and
- o Improve and maintain employee alertness.

However, without a sincere commitment from management to properly implement the railroad's program, the objectives as described above cannot be fully achieved. Therefore, in order to determine if the areas of concern identified on CSX are present on other railroads, and to evaluate compliance of individual railroads with their operational tests and inspections programs, FRA concludes that each railroad subject to 49 CFR Part 217 should:

Within three calendar days of the date of publication of this safety directive in the Federal Register, review its program of operational tests and inspections required by 49 CFR 217.9 to ensure that the recorded individual tests and inspections are conducted in accordance with all of the program's requirements. Specifically, the review should focus on the types of tests conducted, the means and procedures utilized to conduct the tests, and test frequency with the object of determining whether the program is effectively implemented. Within the same time frame of three calendar days, each railroad shall advise FRA in writing as to what steps it has taken and what additional steps it intends to take to ensure that the program is effectively implemented.

Train Dispatcher Procedures: Preliminary investigatory findings following the head-on collision of two UP freight trains at Devine, Texas, on June 22, 1997, indicate that existing DTC procedures of carriers pertaining to the issuance of movement authorities need to be modified in order to reduce the risk of similar collisions.

The UP accident occurred in single track, non-signalized TWC territory; timetable direction is northward and southward. A planned meet of a northward train (UP 5981 North) and a southward train (UP 9186 South), was to have occurred at a passing siding identified in UP's operating timetable as Gessner. UP 5981 North was authorized by track warrant to operate to, and take the siding at, Gessner. UP 5981 North was also in possession of a second track warrant that authorized movement north of Gessner after the arrival of UP 9186 South. UP 9186 South was authorized by track warrant to operate to, and hold the main track at, Gessner. UP 9186 South was also in possession of a second track warrant that authorized movement south of Gessner, but the track warrant in possession of the train crew omitted a requirement to wait at Gessner until after the arrival of UP 5981 North. Consequently, UP 9186 South passed Gessner and approximately 13 miles south of Gessner, struck UP 5981 North head-on. The track warrants entered by the dispatcher into the computer dispatching system established that UP 9186 South was required to wait at Gessner until after the arrival of UP 5981 North. However, the transcript of the dispatcher's radio communications established that the dispatcher authorized UP 9186 South to operate south of Gessner without instructions to wait at Gessner for the arrival of UP 5981 North.

Therefore, in order to avoid a recurrence of such an event, FRA believes that, unless a railroad utilizes a computer-aided dispatching system that employs hard coded safety-edit procedures (such as those already in place at The Burlington Northern and Santa Fe Railway Company's National Operations Center in Fort Worth, Texas), the following procedures are necessary to ensure the safe operation of trains in non-signaled DTC territory:

1. After the contents of a movement authority have been transmitted by the train dispatcher, and before the movement authority is repeated by the receiving employee(s), the train dispatcher should observe the computer monitor and state the total number of boxes (lines) marked on the movement authority and identify the individual box (line) numbers (e.g., "There are four boxes (lines) marked. They are box (line) numbers 2, 7, 8, and 15.") For railroads that do not utilize computer-aided dispatching systems, the train dispatcher should reexamine the office copy of the movement authority document, state the total number of boxes (lines) marked on the movement authority, and identify the individual box (line) numbers. In those instances in which a train meet is included in the movement authority, the train dispatcher should specifically so state, e.g., "this track warrant includes a requirement to meet another train." The train dispatcher should then instruct the receiving employee(s) to repeat the movement authority.
2. After the receiving employee(s) repeats the movement authority back to the train dispatcher, the employee(s) should also state the total number of boxes (lines) marked on the movement authority and identify the individual box (line) numbers (e.g., "There are four boxes (lines) marked. They are box (line) numbers 2, 7, 8, and 15.")
3. Before the train dispatcher issues the time effective ("OK" time), the train dispatcher should confirm the total number of boxes (lines) marked on the movement authority and identify the individual box (line) numbers in the appropriate manner described above.
4. Within five calendar days of the date of publication of this safety directive in the Federal Register, a railroad operating supervisor should personally contact each train dispatcher responsible for controlling train movements in non-signaled territory and inform the train dispatchers in face-to-face meetings of the circumstances surrounding the UP accident described above and the requirements of this safety directive. The occurrence of these meetings should be documented in writing and be made available for review by FRA upon request during normal business hours. FRA expects that each railroad should conduct regular observations of train dispatchers to ensure compliance with the train dispatcher procedures specified in this directive.
5. Within three calendar days of the date of publication of this safety directive in the Federal Register, each railroad should:
 - (a) Review its operating rules and practices pertaining to operations in non-signaled territory to determine what further enhancements in its rules and practices are warranted, including the possibility of eliminating the use of "after arrival of" orders, to improve safety; and

- (b) Submit in writing to FRA the following:
- o A description of the current train dispatching procedures used in non-signaled territory and the safeguards built into the system to prevent human error from causing accidents;
 - o A description of the steps that the railroad is taking to implement the train dispatcher procedure provisions of this safety directive; and
 - o What additional steps the railroad intends to take to enhance the level of safety.

FRA recognizes that all collisions are avoidable, and the most effective way to accomplish this objective is with Positive Train Control (PTC). PTC holds the promise of achieving a level of railroad safety not available through conventional practices. PTC systems improve safety by preventing collisions, overspeed derailments and other types of accidents. These systems can precisely transmit and receive critical safety information for the movement of trains, and eliminate problems associated with voice transmissions. However, until these PTC systems come on line, FRA believes that all railroads should implement intense interim measures to maximize the level of safety available utilizing existing technology. Based on the information obtained from FRA's two ongoing safety initiatives on CSX and UP, subsequent audits on all other railroads, and information gathered in response to this safety directive, FRA may modify Safety Directive 97-1, issue additional safety directives, or take other appropriate necessary action to ensure the highest level of safety on the Nation's railroads.

Issued in Washington, D.C. on June 25, 1997. James T. Schultz, Associate Administrator for Safety