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- 9. The brakes of UY-328's locomotive were applied as the train entered the main track.
- 10. When train UY-328 entered the main track, train S-12 was too close for brake applications on either of both trains to prevent the collision.
- 11. Because the locomotives' diesel-fuel tanks were ruptured, fuel spilled over the derailed equipment and caused fire.
- 12. There is no backup warning system in the event that signal information is not received by the engineer.
- 13. According to the carrier's rules, the conductor and the engineer are equally responsible for the safety of the train. However, the conductor on the caboose is not in a position to receive the same information as the engineer on the operation of the train.
- 14. The dead-man control device on the locomotive unit was inadequate.

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V. PROBABLE CAUSE

The National Transportation Safety Board determined that the probable cause of this accident was the failure of the crew to stop train UY-328 on the siding in violation of the signal indication. As a result, train UY-328 moved onto the main track directly in front of train S-12. It could not be determined why the engineer of train UY-328 failed to stop his train on the siding among several possibilities, the Board considers it most probable that the engineer and the brakeman had fallen asleep and had failed to see the stop aspect displayed by the signal which effected the movement of train UY-328 siding onto the main track.

VI. RECOMMENDATIONS

The National Transportation Safety Board recommends that:

- 1. The Federal Railroad Administration (FRA), in cooperation with the Association of American Railroads, develop a device to stop a train in the event that the engineer becomes incapacitated by sickness or death, or falls asleep. Regulation should be promulgated to require installation and maintenance of such a device. (Recommendation No. R-73-8)
- 2. The FRA include in its present investigation of the safety of locomotive-coach compartments a study of environmental conditions that could distract crews from the controls. Regulations should be promulgated to correct any undesirable conditions disclosed. (Recommendation No. R-73-9)
- 3. The FRA promulgate regulations to require that a railroad equipped with radio communication facilities install radio in appropriate parts of trains and maintain them in operating condition unless an emergency involved are notified to the carrier by appropriate railroad procedures, such as a train order or general order. (Recommendation No. R-73-10)
- 4. The FRA, in the promulgation of regulations governing railroad operating rules, where responsibility for safe operation of the train is assigned jointly to the engineer and conductor, require that they be bonded and informed that they can make back, effective decisions. (Recommendation No. R-73-11)
- 5. The Penn Central Transportation Company establish a backup communication system to ensure that signal information is received by appropriate crew members. (Recommendation No. R-73-12)

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