

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 13, 1977

Forwarded to:

Mr. N.M. Lorentzsen
President
Burlington Northern
BN Building
176 East 5th Street
St. Paul, Minnesota 55101

SAFETY RECOMMENDATION(S)

R-77-30 and 31

About 2:55 p.m., on November 26, 1976, 24 cars of Burlington Northern freight train Extra 5743 East, derailed at Belt, Montana. Twenty-two persons were injured as a result of the accident and two persons are missing. The accident resulted in more than \$4.5 million damage, most of which was non-railroad property. ^{1/}

The accident resulted from a rail failure which originated from a detectable internal defect in a 90-pound rail that was more than 70 years old. The wheel loads to which the rail was regularly subjected exceeded the design capability of the section. In addition, the rail was rolled many years before the "control-cooled" process was adopted by American steel mills to prevent the development of transverse fissures.

Federal regulations did not require that the rail be tested annually for internal defects because it was in Class 3 track that was not used by passenger trains. However, the Burlington Northern had tested the rail inductively and ultrasonically in a way that would comply with regulations for higher class trackage. In spite of the tests 4 months before the accident, transverse fissures developed from a detectable inclusion and the rail failed under the dynamic loads of the train.

^{1/} For more detailed information on this accident, read "Derailment of a Burlington Northern Freight Train at Belt, Montana, November 26, 1976," NTSB-RAR-77-7.

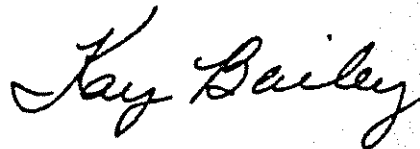
There is reason to believe that the tests in July and August, 1976, should have indicated, at least, the presence of the inclusion in the rail which failed and possibly an incipient transverse fissure. Detection of transverse defects at an early stage in rail rolled before the development of control-cooling is important, and when the section design is marginal for the dynamic loads incurred, it is a necessity.

Therefore, the National Transportation Safety Board recommends that the Burlington Northern:

Evaluate the capability of its internal rail defect testing program and make the necessary changes to insure that internal defects are detected before they develop to the failure stage. (Class II, Priority Followup) (R-77-30)

Relegate rail section of 100 pounds or less, made of noncontrol-cooled steel, to locations where service failures will not result in catastrophic derailments. (Class II, Priority Followup) (R-77-31)

BAILEY, Acting Chairman, McADAMS, HOGUE, and HALEY, Members concurred in the above recommendations.



By: Kay Bailey
Acting Chairman