



Mr. A. W. Rees - Chicago

- 2 -

Topeka, January 5, 1990

At this time the most practical means to insure proper hot box detection under snowy conditions is to slow the trains. As snow will continue to surround the detectors due to low speed operation, special chemical, mechanical, or heating systems should be considered by the Signal Department for long term relief from this problem.

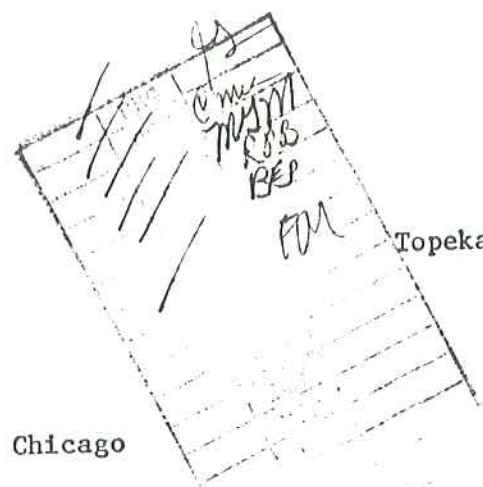
N. C. Marsh

attachments

cc: Messrs. J. D. McPherson - Topeka  
D. M. Miller - Los Angeles  
C. R. Kaelin - Topeka  
C. N. Wheeler - Topeka  
F. L. Sparks - Ft. Madison

GED/NCM/dls/3716q

10050



Topeka, January 13, 1989

03000081

Mr. M. R. Haverty - Chicago

Please be referred to previous correspondence regarding the 30 MPH speed restriction placed on trains passing hot box detectors under blowing snow conditions, ending with your letter of March 9, 1988, file 70070-7.

Recently, we have canvassed many of the other railroads to determine what their present policies are with respect to trains passing hot box detectors under blowing snow conditions. I am showing below the responses which we have received:

Burlington Northern - They presently carry a timetable special instruction which reads, "When condition exists where blowing snow may render track side warning detector ineffective, speed of freight train must be reduced to the extent necessary to permit inspection". We have been advised that the reason for the restriction is because the BN had experienced improper readings under such conditions.

Grand Trunk Western - They have replied that they have no restrictions similar to ours, and although they operate in heavy snow conditions during the winter months, have not experienced any read-out problems with their detectors.

Union Pacific - They have responded that there are no such instructions in effect on the Union Pacific and that they have had no problems in this regard.

DRGW - They have responded that, except on the Denver-Pueblo Joint Line, there are no such instructions in effect for DRGW train crews.

CSX - They have responded that, while operating in many states and the Province of Ontario which have severe winter weather, they have no such restrictions relative to equipment defect detectors and have experienced no apparent problems.



In our previous discussions, we have talked with Mr. Kaelin and members of his staff with regard to the possibility of utilizing Conrail's new hot bearing simulator to perform some tests under blowing snow conditions on a portion of the Illinois Division. We could now be entering a period of severe weather and am wondering if we should consider the possibility of performing tests of this nature at this time.

A. W. Rees

cc: Messrs. D. M. Sizemore - Chicago  
Q. W. Torpin - Los Angeles  
B. B. Gaddis - Topeka  
C. R. Kaelin - Topeka

324y/2234/3

Chicago - March 9, 1988

70070-7

Messrs. Q. W. Torpin (File: 0300081-1)  
D. G. McInnes (File: BR-894) ←  
D. M. Sizemore  
H. G. Webb  
B. B. Gaddis (File: 10050)  
C. R. Kaelin (File: 92-03.093)

Please refer to previous correspondence regarding the 30 mph speed restriction placed on trains passing hot-box detectors under blowing snow conditions.

There is obviously a divergence of opinion on this matter. Based on what Messrs. McInnes and Gaddis had to report, there is even a difference in what we are being told by other railroads, although I think what Mr. Gaddis reported is more detailed.

Your files will reflect that the subject of the 30 mph restriction by hot-box detectors is not a new one. We reviewed the restriction a few years ago and even surveyed other railroads to see what they were doing at that time. We left the 30 mph in place.

While I am all for doing things to improve train performance, it is absolutely imperative that what we decide on electronic detection under blowing snow conditions must provide for assumption of a reasonable risk. I don't think at this time we know what is reasonable. The proposal to let crews decide what the speed should be is not, in my opinion, reasonable.

Mr. Kaelin's letter of February 19 recommended that if we could document that we maintain 80-85% readout on the detectors on the Illinois Division under severe snow conditions, then the slowdown criteria could be eliminated due to the use of carside average.

We need to test the accuracy of the detectors on the Illinois Division as recommended by Mr. Kaelin. If the data show that the readout is 80-85% accurate, then we will consider eliminating the restriction on the Illinois Division and then look at other territories where carside average is used.

Mr. Kaelin should coordinate any tests with Messrs. McInnes and Gaddis although it may be getting too late in the winter to conduct them at this time. Until such time as we can measure the results of these tests, we will leave our present instruction in place.

M. R. Haverty

RECEIVED  
GENERAL MANAGER

MAR 10 1988

A.T. & T. CO.

Topeka, March 4, 1988  
File: 10050

10050



R. Haverty - Topeka (f)

Please refer to your Faxcom of February 29, 1988 file 70070-7, and Mr. McInnes' letter of February 9, 1988 file Br-894, concerning scanability of trains by hot box detectors in blowing snow conditions.

In investigating the survey quoted in Mr. McInnes' letter, "An informal survey of several other roads, including the UP, Conrail and CN revealed they have no speed restriction", we found the following:

I contacted several railroads with the following responses:

**Union Pacific**

Their instructions are that if an integrity failure is reported they will reduce to 35 MPH until they pass the next detector and are then governed by what that detector reports. It should be noted that blowing snow will cause an integrity failure if the condition is severe enough to completely block the scan or if the detector is covered with snow (iglooed).

**Conrail**

They reduce to 30 MPH during blowing snow conditions. Similar to our rule.

**Canadian National**

They have a central read out system and when the normal levels of the train are reduced, as observed by a tape reader, the train speeds are reduced until a normal level is seen.

**Norfolk Southern**

The NSW portion is similar to the UP in that if they get an integrity failure they must stop and inspect their train. This is very time consuming and at the superintendents discretion he can put out a temporary slow order to reduce trains to 25 MPH through a hot box detector. This causes less train delay than inspecting the entire train.

**Burlington Northern**

Time table special instruction No. 8 reads "When conditions exists where blowing snow may render track side warning detector ineffective, speed of freight train must be reduced to the extent necessary to permit inspection."

**I. C. G.**

They have a central tape reader system and if reduced levels are seen they tell the train crew to comply with Operating Rule 111E.

1988

A. Haverty

This information indicates that all railroads I contacted recognize the problem of blowing snow and take some action to compensate for reduced scanability.

Item (3) "There seems to be no valid reason to impose the restriction when it is snowing or sleeting (Item 6(A)), only when there is snow on the ground (Item 6(B))."

It makes no difference if it is currently snowing or if snow is on the ground. The problem is blowing snow, either caused by severe weather or by snow being carried by the train, the effect is the same.

Referring to Mr. Kaelin's letter of February 19, 1988 file 92-03.093 concerning carside alarms for detection of overheated journals in blowing snow conditions.

Mr Kaelin makes the statement "carside averaging allows for better detection under lower detection levels than Servo differential detectors." I agree that carside averaging does make the alarm system more sensitive. The problem is you must still have enough heat to meet a minimum threshold before an alarm is triggered, typically 7mm. The question is can you guarantee you will ever reach this threshold in all blowing snow conditions. The preliminary data obtained from Conrail stated they had seen 80-85% of the available heat in blowing snow. That does not mean this is the worst case condition. It was just an observation that while they were testing it started showing and for the detectors tested in that particular snow 80-85% of the available heat was seen.

As an example of blowing snow attenuation, attached are parts from three hot box tapes from Bucklin, MO. This is a Harmon system at MP 344.5 on the Illinois Division, Third Subdivision. These tapes are for February 10, 1988 for trains at 12:35, 13:25 and 16:11 on the north track.

You will note the first train is at 12:35 and was operated at 28 MPH and a "normal" level was seen with average readings of 3-6 mm.

The next train at 13:25 was operated at 21 MPH but the signal is very low. The north rail (top trace) shows an average of 1-2 mm with the south rail (bottom trace) showing an average of 2-4 mm. The north rail is therefore showing only 1/3 of normal heat and the south rail showing only 2/3 normal. This was due to blowing snow.

The next train at 16:11 was operated at 27 MPH and only the 1 mm pedestal is present showing no heat was registered on the entire train. This was caused by the detectors being covered with snow and resulted in a failure alarm.

The question arises, would the 7 mm threshold have ever been reached on the second train if an overheated journal was present?

three  
4, 1988  
H. R. Haverty

These tapes are typical of what we have seen over the years about blowing snow and its effect on the scanning of journals.

I do understand our need to move trains efficiently and I see no problem in Special Rule (6) as proposed to giving the train crews the discretionary latitude they need. However, we should not lose site of the real problems that blowing snow causes in detecting over heated journals.

B. B. Gaddis

cc: Messrs. D. G. McInnes - Topeka (nf)  
H. G. Webb - Chicago (nf)  
Q. W. Torpin - Los Angeles (nf)  
C. R. Kaelin - Topeka (nf)

Attachments

4572U

bcc: Messrs. V. E. Breeden - Topeka (nf)  
R. N. Snodderly - Los Angeles (nf)

FM

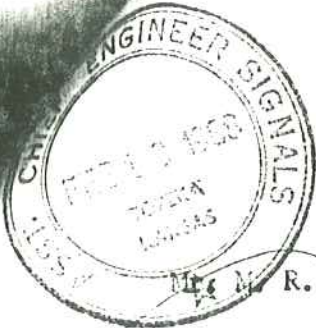
F A X C O M

Topeka, February 9, 1988

BR-894

10950

✓	DDG	
	VEB	
	MGM	
	BES	
	SAH	
	RES	
	CNW	
	JLA	
	DRD	
	JAE	
	REL	
	DLL	
✓	FDM	FW



Mr. R. Naverly - Chicago (F)

In recent discussions about our hotbox detector instructions as contained in our timetables, it was brought to attention that Item (6) of INSTRUCTIONS APPLICABLE TO ALL TYPES may be more restrictive than necessary to insure proper function of the detector and safe movement of our trains. It is felt by some that the 30 mph restriction as presently imposed may not be necessary in all cases. For example, a train restricted to 55 mph may not be agitating the snow and could safely pass over the scanner at that speed and obtain a proper read by the detector. Yet a 70 mph train which is agitating the snow must reduce speed to 30 mph even though the agitation of the snow may have ceased at 55 mph.

A meeting was held on February 5 with representatives from this office, the Signal Department, Technical Research and Development, and the divisions to discuss this subject in more detail.

Some of the comments and observations made regarding the 30 mph restriction were:

(1) At the time the 30 mph restriction was imposed, we had only a few detectors and the restriction had little effect on our train performance. Presently, there are 16 detectors, for example, between Chicago and Kansas City with five more being installed. The 30 mph restriction imposes a tremendous burden on our train performance.

(2) An informal survey of several other roads, including the Union Pacific, Conrail, and the Canadian National, revealed they have no speed restriction. *does have 30 MPH*

(3) There seems to be no valid reason to impose the restriction when it is snowing or sleeting (Item 6(A)), only when there is snow on the ground (Item 6(B)).

(4) If train speeds could be safely increased while passing the detectors, this would help in keeping the roadbed clear of snow at the scanner location. At the present time, in most instances the roadbed is more clear of snow approaching the detector because of the faster train speeds, but it is not clear of snow at the detector because of the 30 mph restriction.

c.  
44  
7/0  
7/0

(5) It was suggested that black ballast be dumped a mile or two in advance of the scanner to help melt the snow and thus help to eliminate the agitation problem.

(6) Perhaps we could broadcast a chemical in the detector area to help seal the snow and avoid the agitation. I believe at one time fertilizer was used for this purpose on a limited basis.

Mr. Kaelin's people have said they will check with equipment manufacturers to determine their feeling about the need for a speed restriction in light of the equipment that is in service on our railroad today. In addition, they will contact Conrail to elicit what information they can about the results obtained from Conrail's hotbox detector test car. Likewise, further contact will be made with some of the Northern roads, such as Canadian National, to determine the types of reads they are receiving when trains pass over scanners at speeds greater than 30 mph when snow is on the ground.

All of this should allow us to make an informed decision on the need to continue the 30 mph restriction. In the meantime, however, as outlined in the initial paragraph of this letter, I am proposing that we immediately change Item (6) of INSTRUCTIONS APPLICABLE TO ALL TYPES to read as follows:

While passing over hotbox detector scanners when snow is being or can be agitated by a moving train:

- (A) Speed must be reduced sufficiently to insure the condition no longer exists, as determined by visual observation of the crew; or
- (B) Speed must not exceed 30 mph.

This change should let us improve train performance and reduce fuel consumption while maintaining the same degree of safety as at present. If Mr. Torpin is in agreement with this change, I request your approval to amend our timetable instructions accordingly.

D. G. McInnes

cc: Messrs. H. G. Webb - Chicago (f)  
B. B. Gaddis - Topeka (nf)  
C. R. Kaelin - Topeka (f)  
Q. W. Torpin - Los Angeles (f)

0189w