

Question to the group. A couple of months ago there was a train derailment here in the County and BNSF just announced the cause. The cause, in my mind, raised questions for our 1/8th scale hobby: when pulling passengers and having other cars in the string -- should we be concerned about weight concentrations and where they are located in the string of cars we are pulling? Another question comes to mind: why are they blaming the engineer -- I would think those who made up the train caused the problem by locating the empties toward the front vs. the end of the train?

Press Release:- The cause of the Dec. 19 train derailment in Wyanet has been determined to be "buff forces generated by improper train handling."

"This train contained two cars that had speed restrictions over the bridge," Forsberg said. "As the engineer approached the bridge, he started slowing the train but had started too late. He then tried to take more extreme measures to get the train speed down. These actions caused the train to compress (buff) too quickly applying forces to the empty cars near the front of the train that could not be constrained."

"..... the explanation should not be misinterpreted to mean the train was speeding on the track on which it was operating. The explanation means the effort to slow the train for the lower speed restriction on the bridge created compression forces in the train, which in turn caused the derailment."

"The Wyanet train derailment occurred at 8pm Dec. 19 on the east edge of town when an eastbound 92-car freight train went into an emergency braking situation. Nineteen cars were involved in the derailment, with 15 of those 19 cars remaining upright. The remaining four derailed cars did not remain upright but went off the tracks, down the hillside and into the creek."

Comment 1:- I read the report in full and it sounds like the engineer went a little too far with the brake handle and put the train into emergency (big holed). The cars with speed restrictions were probably not the cause of the derailment, but cars that were empty surely could have been jack-knifed if they were buried in the train with heavy (and now sliding) cars were behind them.

As engineers on full sized trains are reminded, emergency is for just that-EMERGENCIES! All kinds of nasty forces come into effect when all of the wheels on a train are locked up, especially at speed.

Poor train handling is the reason of the derailment. Buff forces is a reaction of the cars running into each other.

Comment 2:-

....when pulling a longer string of cars, when going around a curve with lighter cars in front, you run the risk of the light cars derailing as the heavier cars pull back on them.

.....The engineer failed to have his train under control. He should have been aware of the bridge with speed restrictions. He should have had his train slowing further before where the speed restriction was. "Emergency" braking is only used for "emergencies". Cars are usually placed in particular order for a reason by others, not the engineer.

Comment 3:-

Buff is the opposite of stretch. is correct about the Engineer, he's supposed to know how to handle whatever they give him.

When you get called for a freight train... as opposed to a unit train, or the Track Geometry Car I had this morning (two cars, one motor and 60mph, it was wunnerful).... you are supposed to study the "wheel report" to see where your weight is concentrated, or not, as the case may be. Mixed freight trains never handle the same twice in a row. The mtys [*sic*] and loads are in different places and weights, the HazMat has to be identified, and you have to figure out how to handle it over the road. After you figure out how your train is going to handle, then you have to see where your speed restrictions are. Once you know that, you should figure out how you are going to handle the speed restrictions. You are supposed to know all this stuff before you ever move the train.

In the Engineer's defence..... the Santa Northern is "death" on using "the air" to control your speed. They want you to always use Dynamic, unless it's impossible. And, I've had the investigations to prove it, ha, ha. The result is usually to look at an hour of "fuel saving" video, and get paid for the trip you had to miss to attend the investigation. Anyway, just because the Company wants you to use Dynamic, it's still not the best way to handle a freight train. There's waaaay too much running in and out. He may have been trying Dynamic, and it wasn't getting it done, so he went for more and it bunched up on him. It doesn't say that he plugged it, that might have been the result of one of the light cars getting squeezed out?

Also, if you "plug" it, you have to explain in writing to the RoadForeman why you did it. A lot of our new Engineers are afraid to use the air, and many of them are sliding by Red signals at 4-5 mph, account they don't want to get in trouble for using Emergency. Emergency is just another position on the brake valve, if you need it, you use it! I had to plug a coal train coming down to East Campbell one day, account it got down to 17 mph and then quit slowing down. My theory is that it's a lot easier to tell the RFE why you plugged it, than to get "decertified" for getting by the red.

What's a wheel report?

..... I'll try and describe one. First off, it's a list of the cars in your train, front to back. The cars are listed by initial, number, type, Mty or load, weight, lading, destination, and HazMat if applicable. A loaded coal car in a unit train would look like:

"Line 1: GRDX 50762 G6L, 130 tons, coal, Grand Island, NE via UP". After all the cars listed, there is a place for special handling, like High/Wide loads that can't meet in special places, etc..... usually here, they are Boeing 737's on long flatcars, and their associated wings and tail assemblies in special cars, going to Seattle.

At the end of the list there is a "train profile" that looks like a bar graph and it shows each car's weight. It isn't really as complicated as it sounds, after you get a few years of experience handling trains, you can look at the profile and say: "Arrrgh, all the loads are on the rear end, it's gonna' beat us to death". How to handle them is something you learn.... or some guys never do, that could have been the case in the wreck. Knowing what you've got behind you is something you've got to be thinking about all the time. You can stretch my flats off the inside of a sharp curve by pulling on them too hard, or "bunch" them off e outside with too much Dynamic. You aren't up there just looking at the scenery and waving at the girls.

Long trains of mixed freight are hard to handle, especially on "undulating" grades, with part of the train going uphill, and part or parts, going down. The slack is running in and out, most of the time you don't have enough power to outrun the train, so you do the best you can. That's why I like running coal trains, because they are all loads or mtys, and pretty much all the "sets" of a certain owner's cars behave the same way. In an emergency you do whatever you think will get you out of it alive. The Company has charts and rules about how much Dynamic you can use, and there are speed restrictions if you don't have at least 10 loads on the head end of a freight.

There are some computerized "fuel test" motors out here, and the ones I've run make for really poor train handling, in the name of Economy. When the lead motor thinks you don't need all three running in whatever throttle position you're in, it drops out of the parade, and winds the other two up to 8 throttle. Of course, you have no way of telling what the trailing motors are doing, and if the lead motor picks the bottom of a hill to drop out, the train runs into you.

That outfit was the reason for my latest Investigation. After the second time the train ran into us, I decided I wasn't going to put up with it anymore, so I put 'em in 8 and stretched 'em home. Most of the new motors "download" the black box everytime they get close to certain Terminals. Being a "test" train, the report went all the way up to a vice-president, and came back down to bounce off the Roadforeman's head. I was charged with 6 "power" (above 5 throttle) and 12 "stretch" (below 5 throttle) braking violations in 121 miles, but boy it handled nice.

With thanks to all correspondents on the Live Diesel Yahoo Group. Ed