Before the
National Transportation Safety Board

Positive Train Control Forum

Statement of

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Madame Chairman, Members of the Board good morning. I want to thank you for the opportunity to provide the views of the Brotherhood of Locomotive Engineers and Trainmen concerning the need for Positive Train Control.

The operators of the various modes of transportation work with extraordinarily sophisticated systems to effect safe transportation for the general public. For example, airline pilots and air traffic controllers have relied upon radar technology for decades as a means of maintaining aircraft separation. PTC is the most advanced railroad signal technology available and — when overlaid on current signal systems or other forms of movement authority — is designed to perform a similar function for locomotive engineers.

PTC technology for engineers is not unlike what radar technology is to the airline pilot: a technology that provides information about potential movement conflicts ahead and permits the engineer to react before exceeding the limits of the track he has authority to occupy. However, warnings provided by static wayside signal systems are limited by the track's geometry, curvature and grade. Similarly, in non-signaled territory, track warrants grant authority to move and occupy portions of main line track.

The distribution of loaded cars and empty cars within a train affect the inline forces and the engineer's train handling. The inline forces and weight of the train, topography and weather all affect the retarding forces of the braking system and determine the safe stopping distance for any train. Train handling has been further complicated by the proliferation of distributed power units, or DP, which are additional engines placed throughout the train and controlled by the engineer from the lead locomotive. In actuality, a two-mile-long train with a DP consist in the middle is, functionally, two one-mile-long trains coupled together and operated by a single locomotive engineer.

Even when DP is not used, railroads have enhanced productivity by extending the length, and increasing the weight, of their trains, to sizes beyond those typically used when fixed signal systems were installed. In addition, to maximize the utilization of fuel and materials, the industry has implemented human productivity requirements, such as fuel conservation monitoring technologies and limitations on approved methods of braking a train, which limits the engineer's available train handling options.

For example, all the major railroads routinely download event recorder data when a train passes certain wayside detection devices. The data then are transmitted to a computer, which analyzes the engineer's performance, looking for certain types of operational issues, including placing a train's brakes in emergency. But these results are not used to review the sufficiency of operational procedures or provide an engineer with additional training. Instead, they are transmitted to a railroad supervisor, who initiates disciplinary action against a non-complying engineer.

When first designed and installed, the current fixed signal systems were intended for use for single-train operations, and stopping distances were calculated on this basis, with an added margin for less than optimal braking performance. In many places that added margin is approaching or has reached its limitations for today's train weights and DP train operations. Increased stopping distance requires increased warning distances to maintain the existing level of safety.

Current signal systems are static and have pre-established hard boundaries that do not compensate for the increased weight of trains or decreased braking force, each of which obviously increases the train's safe stopping distance. That system, standing alone, is therefore incapable of providing any additional advance warning of potential problems, even though minimum safe stopping distances may have been increased dramatically. Track warrants or train orders establish the limit of a train's authority in non-signaled territory as a hard boundary. Yet that system alone provides no additional advance warning that a train is approaching the end of its limits.

In any mode of transportation when possible collision is detected some evasive action must be undertaken. When radar warns the pilot or air traffic controller of conflicting movements, an aircraft can change altitude or course. Motor vehicle operators can swerve or stop to avoid a collision. Obviously, stopping is the only option for a locomotive engineer. Clearly, the more advance warning engineers receive, the better the likelihood of avoiding a signal violation, authority violation, or an accident. PTC — in concert with the engineers' expertise, skills and training — maximizes that advance warning.

The engineers, using their craft skills, once had broad discretion in determining how to properly handle trains in anticipation of events that would affect the safe movement of their trains. The proliferation of distributed power, increased train tonnage, and train handling limitations, coupled with a static or — in some places, nonexistent — signal system paint the engineers into an operational corner, in which the "bad" options often outweigh the "good" ones. Ever increasing train stopping distances demands the technological assistance provided by advance warning systems, such as PTC, to maintain train separations, avoid collisions and encroachments into unauthorized track occupancy.

A PTC overlay provides a constantly adjusting set of factual calculations that informs the engineer of the safe stopping distance between their train and targets in advance, as opposed to the fixed warning opportunities provided by a stand-alone static wayside signal system from another era. PTC enhances current signal technology by performing basic calculations to measure speed, weight, in-line and braking forces, and distances to the advance targets, warning the engineer of approaching danger and, as a last resort, activating the train's brakes to enforce train separations and track occupancy authority. In this way, PTC as an overlay on the current signal or authority systems will result in safer and more efficient train movements nationwide. Implementing PTC will enhance the engineers' vision through technology.

All too often today stopping at a red signal becomes an adventure. Railroads punish engineers for taking it upon themselves to take train handling initiatives that were once routine. Primarily informed by business economics, the industry has decided that it will not allow the engineers to apply their knowledge of the physical characteristics of the infrastructure and their training on the performance of the equipment to manage the safe movement of the trains. They have tied our hands behind our backs.

The industry is now resisting, watering down and lobbying against implementing PTC technology that could alert the engineer earlier to take action or bring a train to a stop before passing a red signal or exceeding his authority, and most importantly, before a collision. Rejecting PTC would close our eyes.

PTC as a concept has been around for years. The industry has consistently resisted its implementation in any form. Several high profile train accidents over the last decade have caused human suffering that would have been prevented had the technology been in place. Three incidents provide real life lessons we should never forget.

- Graniteville, SC where a switch was left in the wrong position and a collision in non-signaled territory resulted in an accident and chlorine gas leak that killed the engineer and eight others, thousands of citizens were evacuated. Property damage was over 7 million dollars.

- Chatsworth, CA where passenger service is mingled with freight service and a train to train collision resulted in the death of 25 people, injured over 100 and caused over 12 million dollars in property damage. .

- Goodwell, OK where a train exceed the speed authorized by signal indication, passed its authority limitation and several employees were killed. Property damage estimates are approaching 15 million dollars.

The time has come for the regulatory community to assert itself, and impose balance into the technology implementation versus fuel and brake shoe conservation dynamic to protect the employees and the public, and insist on the implementation of overlay Positive Train Control.