Single Person Train Crews – Simply a Bad Way to Run a Railroad

By Ron Kaminkow

Rail carriers – like many corporations – are obsessed with the short-term operating ratio, and the desire to cut costs – especially labor costs – all with the goal of delivering short-term maximum value to stockholders. It is this drive that has been propelling rail corporations – all of them "Fortune 500" entities, which are some of the most profitable and powerful companies today – to push for single employee train crews on mainlines throughout the country. From a Wall Street perspective, this is an entirely logical and rational way to run a railroad. But rail workers, shippers, passengers and the public at large – others who have a vested interest in safe and efficient train operations - have a different take on this. For them, this concept raises numerous red flags regarding safety, efficiency, train operations in general, and the health and vitality of the rail industry in the years ahead.

Background

The rail carriers are fond of stating that there is no "evidence" to show that single crew operations are any less safe than multiple crew members. This is disingenuous on their part, as we all know that single crew train operations barely have been experimented with in North America. And *no* Class One mainline operation has *ever* utilized this form of operation. Saying there is no evidence that single crew operations are *not as safe* as those staffed with the traditional two-person crew begs the question, is there evidence that they *are as safe*? Of course, the answer is no. We could also postulate a myriad of other possibilities, such as: there is no evidence to show that trains are just as safe with or without a 1000-mile inspection; or likewise, there is no evidence to show that locomotives would be just as safe if only inspected weekly instead of daily. Or again, there is no evidence to show that workers need to be qualified on the territory over which they operate their trains. All of these are current practices by rule, regulation and/or law. To simply state that there is no evidence to prove that we do not need these practices, and therefore, it is safe to abolish them, is absurd.

In the case of single person train operations, just a handful of such operations have been experimented with. Two such experiences come to mind, both being unit train operations from Point A to Point B on low density tracks, including the Indiana Railroad and the Quebec, North Shore & Labrador. Another infamous example of single train crew operations (that no longer exists) was the Montreal, Maine & Atlantic, where after two months of running trains experimentally with a single crew member, a train ran away down a steep grade, derailed and exploded, wiping out much of the downtown of a scenic lakeside Canadian town, killing 47 people.

The rail carriers argue that as Positive Train Control (PTC) nears complete implementation, that the second crew member is no longer needed to maintain safe train operations. Once again, the carriers' rhetoric regarding safety rings hollow when we learn that as early as 2004, the carriers declared their intentions and desires to run trains with a single crew member, long before PTC was considered and then mandated by the Rail Safety Improvement Act of 2008. Had the rank & file rail workers and their unions not been able to hold them off, the carriers would have instituted this practice without the assistance of PTC more than a decade ago, safety apparently be damned.

The rail carriers argue that with low wage non-union trucking as their competition, and with autonomous and platooning of trucks on the horizon, the rail carriers must cut crew costs to stay competitive. Once again, the carriers' arguments are a bit disingenuous, when you consider that a two-person crew is easily capable of handling two or even 300 truckloads on one train! In addition, U.S. freight railroaders – once numbering some two million workers but now numbering less that 10% of that figure – are considered the most productive in the world – moving more tonnage per person-mile than any other.

The rail carriers assert that even the Federal Railroad Administration (FRA) claims that there is no reason to abstain from single person train crews, thus there being no need for any such rule or regulation. This is of course, the same agency that a few short years earlier proclaimed on April 9, 2014, its intent to require two-person crews "for most main line train operations including those trains carrying crude oil." FRA Administrator Joseph C. Szabo at that time flatly stated, "We believe that safety is enhanced with the use of a multiple person crew - safety dictates that you never allow a single point of failure … Ensuring that trains are adequately staffed for the type of service operated is a critically important to ensure safety redundancy."

The difference? The current FRA Administrator appointed by President Trump – Ron Batory – is a lifelong railroad executive, squarely in the pocket of the rail carriers, appointed to the position as a gift to the freight rail industry.

So, we have on the one hand, the rail industry and the oversight administration taking the position that single person train crew operations are safe, efficient, and necessary. While on the other hand, the railroad workers and their unions of both crafts – engineer and conductor – are dead set in opposition. Who to believe? Let's take a closer look at the situation.

Railroading is Very Different than Trucking

The argument has been made by the rail industry, politicians and pundits alike, that trucks travel the nation everyday with a single person in the cab. Why can't railroaders do the same? Well, for a lot of reasons:

- Truck drivers can listen to the radio, talk on the phone, play music, and/or smoke tobacco to assist them to stay awake. Railroaders cannot.
- Truck drivers can pull over and take a nap within moments of feeling fatigued. Railroaders cannot.
- Truck drivers can pull into a truck stop, get a coffee, shower, eat, talk, relax, socialize, and recuperate when they are in need. Railroaders cannot.
- Truck drivers are an exit away from all sorts of support services and assistance. Railroaders are not.
- Truck drivers can call for medical or emergency services anytime day or night and expect to have police and first responders on the spot within minutes. Railroaders cannot.

An Inevitable Decline in Safety

Despite what FRA chief Batory has claimed in recent years, as noted above – which represents an agency about-face from its earlier position (NOTE: the current FRA has also done an about face on a series of other rail safety related issues, including movements of Liquified Natural Gas (LNG) by rail, Electro Pneumatic (ECP) braking, and oil train regulation), the Agency itself released a 41-page report on January. 13th, 2020 by its own Office of Research, Development and Technology which contradicts Batory. Researchers at the Volpe Center over a period of years performed cognitive task analyses (CTAs) that examined the mental demands placed on rail workers - including operating personnel in the locomotive cab - as they engaged with technology and performed their jobs. *"Results from the locomotive engineer and conductor CTAs indicate that train crews, a primary example of an elemental team in railroad operations, exhibit characteristics of high performing teams that are found across industries," the report said. "These include mutual performance monitoring — to catch and correct errors — and active support of each other's activities …These teamwork activities went beyond the requirements of formal operating rules and were not explicitly covered in training,"* the report states.

Importantly, the Volpe research notes that Positive Train Control (PTC), will not provide all the cognitive support functions the conductor currently provides to the locomotive engineer. This scientific research builds upon earlier findings at Volpe, first released in December of 2013: *"The locomotive engineer and conductor function as a joint cognitive system, meaning that conductors and locomotive engineers jointly contribute to the set of cognitive activities required to operate the train safely and efficiently … While each crew member has a distinct set of formal responsibilities, in practice they operate as an integrated team, contributing knowledge and backing each other up as necessary… When operating on the mainline, conductors not only serve as a 'second pair of eyes', alerting the locomotive engineer to upcoming signals and potential hazards (e.g., activity at grade crossings; people working on or around the track), they also contribute knowledge and decision-making judgment… Conductors also serve an important, redundant check and backup role, reminding locomotive engineers of upcoming work zones and speed restrictions… If necessary, they will also handle unanticipated situations and activate the emergency brake, in cases where the locomotive engineer has not responded quickly enough… Conductors have developed a variety of skills and strategies that enable them to handle non-routine situations safely and efficiently."*

Rank & file railroad conductors and engineers can verify the finding of the Volpe Center, from years of cumulative collective experience in train operations of all kinds under all conditions from routine to extreme.

Fatigue: Long an issue with current and past train operations, the NTSB has cited crew fatigue as a major factor in ~~a~~ several deadly accidents over the years. Despite this, and despite the numerous studies that show the dangers of fatigued workers as analogous with the dangers of workers under the influence of alcohol, the industry has ALWAYS denied it has any role in creating and perpetrating a workplace that practically guarantees that train crews will be subject to frequent fatigue. Without a second crew member to assist, a single crew member would of course be expected to carry out numerous other duties in addition to operating the locomotive. Tasks that the conductor now handles include:

- Radio communications with dispatchers, signal maintainers, track inspectors and other railroad personnel.
- Keeping a record of the train manifest including the location of all hazardous materials in the train.
- Making minor fixes to the locomotive interior including windshield wipers, lighting, ventilation, windows, mirrors, etc.
- Assisting with food and drinks, other amenities.
- Looking up Rules and instructions when in doubt.
- Stocking the engine with ice and water.
- Obtaining and copying orders from the dispatcher at the start time of shift.
- Making necessary adjustments to trailing units as needed.
- Performing necessary outside work such as locomotive consist preparation and air tests.

In addition, railroad rules prohibit reading non-railroad materials, do not allow for distractions such as radios or taped music, and disallow napping. With no one to talk to on a single person crew, the lone operator has no respite from the job for the full tour of duty (up to 12 hours). And with the inherent inefficiencies of single person crew operations lengthening the average trip (see below under Decreased Efficiency), fatigue would no doubt become an even greater safety hazard should single person crews be implemented.

Restricted Speed: Current PTC does not protect against collisions at "Restricted Speed." When trains enter a "restrictive" block, PTC is not set up to stop the train before it encounters and overruns a derail, misaligned switch, or train/engine ahead. Two in the cab is a safety overlay in this circumstance. A crew of one in this very common situation is much more vulnerable than a crew with a second person.

PTC Failure: Like any technology, PTC is prone to fail. This can be the result of a failure on the locomotive or the wayside equipment. When either of these failures occurs, the train crew operates according to signal indication and standard operating rules *without* the protection afforded by PTC. The carriers make the case that single person crews are safe now that PTC is in effect. This begs the question, are single person crew operations safe when PTC is inoperable? According to their own logic, the answer can only be NO.

Switching: When a train is setting out or picking up cars, PTC in many cases offers no protection. Since the lone operator is now subject to a greater level of fatigue as a result of single crew operations, there is a greater danger that mainline switching accidents will increase.

Derailments: When a train derails or otherwise suffers a mishap, the conductor can swiftly move into action, being immediately present, and make expedited decisions on what must be done. Equipped with the train's manifest, s/he knows where the hazardous materials are located and can take action to potentially avoid further destruction/danger/loss of life. The most notable example of such action – action that would have been impossible with a single person crew – was in a Castleton, ND wreck in

2013, when the Conductor was able to pull the hind end of an oil train away from the remainder of the burning train by utilizing the train's DPU. And there are numerous examples where crew members were able to assist another who may have been injured in the wreck.

Pedestrian and Vehicle Strikes: Just as in the aftermath of derailments, in the moment following a pedestrian/vehicle strike, an expedited response by the train crew can save lives and property. It stands to reason that a lone crew member cannot respond as quickly as a two-person crew is able to. Currently, the conductor is often the first on the scene after the crash, able to explain its nature, location, and logistics to the engineer by radio, who in turn reports this info to the train dispatcher, who relays the information to first responders and other nearby train crews as necessary. The conductor may decide to "cut" the train to unblock a crossing or take other measures to facilitate rescue efforts. With a single person crew, the operator would be obliged by rule to tie handbrakes on the train, a time-consuming procedure, prior to being able to walk back and investigate. Upon arrival, the operator would not be able to cut the crossing or otherwise move the train. The operator might obtain assistance from the utility worker, but this worker would, in most cases, be miles – and possibly hours - away from the scene.

Miscellaneous Issues: With just one crew member, there is no one to assist in case of emergency. When a crew member leaves the cab of the locomotive, especially in remote areas, at night, and/or in remote locations, should anything happen (slip, trip, fall injury; snake bite; heart attack, stroke, assault, etc.) there would be no one to be aware nor take action to assist. Unable to return to the locomotive, it is possible that the worker would be unable to communicate her/his condition to the dispatcher. Even aboard the locomotive and able to communicate her/his condition, s/he has no one to administer first aid, CPR, or any other aid and assistance until help arrives, which could be hours away.

Degraded Knowledge, Wisdom, Railroad Culture, Mental Health, and Solidarity

The locomotive cab today – as it has been for more than 150 years – is a rolling classroom, where the older more seasoned worker of the crew mentors the younger, where the more knowledgeable teaches the neophyte, and where both crew members discuss the railroad in all of its facets. Invaluable lessons are taught to one another, as the two crew members share tales, vignettes, and "war stories" about an endless array of scenarios and circumstances, and what they did to find a solution. The two may discuss ways to improve railroad operations, criticize inept dispatching, analyze the history of this or that operating rule, or compare notes on ways and means of dealing with certain scenarios that come along in the course of any given tour of duty. They may discuss the union contract, pay, benefits, union rules and procedures and more. They are involved, interested, and "in the game."

With single person crews, this classroom comes to an end. The carrier and the union lose this invaluable training ground, this sharing of vital information and ideas about rules, operations and yes, safe practices. The workers lose a valuable source of wisdom and knowledge, literally forfeiting information that could, at-minimum, make for a better quality of work life and at most, in fact save a life. The worker would spend future shifts all alone, with no one to ask questions of, bounce ideas off, and share her/his own valuable knowledge with. The loneliness, boredom and stress of constantly working all alone in isolation has the potential to be unfulfilling and boring, leading to a decline in job satisfaction, an increase in turnover rates, and a decline in professionalism and longevity. As a result, the collective wisdom of railroad workers would decline, along with their collective mental health and solidarity. With no one to connect with, no one to share ideas and knowledge with, no one to stand up for and be stood up for, solidarity and the collective identity would inevitably decline. Railroading might come to be no longer a life career choice, but a way to spend a few years to make some money, again, diminishing collective knowledge and wisdom.

A Decline in Efficiency

The rail carriers emphasize how efficient single crew trains will be. They understand of course, that when a train needs to be "worked" on the mainline, it will be much smoother, quicker and safer operation with two crew members present in the cab of the locomotive. But when they say "efficient", they mean less labor costs. And the savings that would accrue under single crew member train operations would be substantial. Hence, their drive since 2004 to implement such operations.

But the economic gains that might be achieved by the elimination of the second crew member will be offset to one degree or another by the inherent inefficiencies of single person operations. Ironically, it was none other than Hunter Harrison, the godfather of Precision Scheduled Railroading (PSR) which has degenerated into a Wall Street driven scheme to deliver short-term profits by "streamlining railroad operations" and a major force behind the drive for single person crews, declared his opposition to single person crews shortly before he died in 2017 while at the helm of CSX. "I'm not a one-man crew advocate," he stated in the Spring of that year, although he did note that there could be possible limited applications for such crews, e.g. switching at mines. "But today, to take a 20,000-ton train on line-of-road, with one person, I don't think it's good business," Harrison added, citing safety concerns and the value of an extra set of eyes and ears in the cab. Plus, he claimed, it would pose unacceptable delays when a lone crew member had to contend with a broken air hose or a knuckle failure (see below).

Trains on the Mainline

There are a few circumstances when the lack of another crew members in the lead locomotive stands to impede the forward progress of a train under routine conditions. Some examples include:

- When cars are set out/picked up enroute, the conductor must make note of the train's changed makeup, noting particularly the location of hazardous loads in the consist. Without a conductor aboard, able to do this while the train is in motion, the remaining crew member would be responsible for this task, delaying the train's forward progress until the task is complete.
- Anytime the lone employee must use the restroom while the train is in motion, the operator must bring the train to a complete stop.
- When the lone operator is in doubt of a specific rule, s/he must bring the train to a stop and check.

- Anytime the lone employee in the cab wishes to make adjustments to the cab interior (e.g. duct taping drafty cracks, adjusting the left-side mirror, retrieving materials from the nose of the engine, or otherwise having to leave the control stand, s/he must bring the train to a stop. OR perform these activities while the train is in motion, compromising safety.

But the major inefficiencies that will be incurred by the railroad is when the train has an issue that requires it to be "worked." While not routine, these circumstances are not rare. Trains stop – or must be brought to a stop – under a wide variety of circumstances. Broken knuckles or drawbars, shifted loads, dragging equipment, hot journal bearings, flat wheels, a front-to-rear "No Com" failure of and End-of-Train (EOT) device, failed wayside detectors, busted or separated air hoses, excessive brake pipe leakage, and stuck vent valves are some of the many reasons a train may be brought to a stop.

Once stopped, a train with a two-person crew works together to rectify the problem, make the necessary inspections, set-outs, repairs, air tests, etc. and then proceed onward. Without that second crew member, a disabled train would be required to wait for the "Utility Conductor" to arrive before the train can be worked. In fortunate circumstances, this might take a matter of minutes. However, in less fortunate circumstances, this could take a lot longer, depending upon a host of factors:

- The location of the utility worker. S/he could be many miles away.
- The location of the train and its isolation from major highways and arteries.
- The potential that the train is at a location void of any type of access road.
- Time of day and the weather conditions.
- The availability of the utility worker, who might currently be otherwise engaged in another task with another train somewhere on the subdivision.
- How long the utility worker might be engaged with that other train before being freed up to service the second train.

In addition to mechanical issues with a specific train, track and signal malfunctions and irregularities also cause trains to come to a stop, requiring assistance prior to resuming forward progress. Some of these include:

- Automatic track switches that are improperly lined for the desired route, that must be taken "off power" and be operated by hand in order to proceed.
- A road crossing with an "activation failure" of the warning devices, which must be "flagged" with the assistance of a second worker.

The delay would be minimal if a "utility worker" was close at hand. However, just as with the train mechanical failures outlined above, the delay could be quite lengthy.

Trains in the Yard

When a mainline train enters a yard, the crew often must line a series of switches to bring the train along the desired route into the intended track. This can amount at times to as many as a dozen switches being thrown. For the operator to dismount and line the switch or switches, walk back to the engine, pull forward to the next set, dismount and do the same, is a time consuming and cumbersome operation. (NOTE: because the operator would be leaving the train unattended, it is debatable whether this is even within the rules to take such an action without applying sufficient handbrakes). The alternative would be to wait for the utility worker – if one was in fact on duty and available – to handle the switches. Though automatic switches do exist in some yards, their implementation throughout the entire industry is still far down the road.

Summary

Train operation with a lone employee on the locomotive is time consuming and inherently inefficient. Train operations will necessarily be slowed down without the second crew member at hand for a multiplicity of tasks throughout any given tour-of-duty. The lack of the conductor will increase the time it takes for the average train to get from point A to point B. Track capacity on any given mainline will be reduced accordingly. Long delays will be common, including delays to Amtrak and other passenger operations. Where these long delays take place on single track territory, the Subdivision or the entire Division stands to be backed up for days. If the disabled train is in a remote location, the ripple effect would be even worse. Add inclement weather into the mix, and the need to re-crew the train as the operator has now exceeded the hours-of-service law, and the delay becomes even more significant. As coal continues to decline and railroads look to other sources of revenue – such as high priority high value freight – the nation's railroads need to be fluid and unencumbered. As a nation, we should ensure that trains are expedited across the territory as quickly as possible, and able to take millions of carloads of goods off the nations overcrowded and crumbling highways. Single employee crews on freight trains will not facilitate the rail transportation system we so vitally need going forward.

Conclusion

Running trains in much of North America with a single crew member is a terrible idea which will lead to a decline in safe and efficient railroad operations. The two-person crew has been standard practice for three decades now. During the past 30 years, the railroad has rebuilt and prospered, recaptured lost freight traffic, and improved the physical plant. The railroad stands poised to enter a new phase, one of robust growth and development, where millions of tons of freight and millions of passengers leave the highways and ride the rails instead. Any move to single person train crews stands to cripple the railroad infrastructure, rendering it incapable of handling such an increase in traffic. Railroads are more vital than ever to our nation's health and well-being, and must be ready, willing and able to get the job done safely in the coming years and decades. Trains crewed with a lone employee would be a devastating blow to workers, shippers, passengers, communities along the right-of-way, and the national interest.

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