Trouble in Furnace

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In 2010 I wrote an article for the NMRA Mid East Region called "Operating On The Easton & Potomac: Don't fix Problems! An Advanced Operations Philosophy". This article was published in the *The Local* Vol. 65 No. 6, November-December 2010 and can still be read at http://mer.nmra.org/MEReLocal_Files/2010/localnovdec10.pdf. This article put forth the idea that problems arising during an operating session can contribute greatly to operational enjoyment. That is exactly what happened during my 100th operating session held in November of 2012.

It all started in Furnace, Virginia. Train No. 30, a mixed train out of White Hall, had just finished dropping off a freight car at the team track and was spotting an off spot car on the abandoned siding when the assigned engine 42 developed a problem and would no longer move without binding.

Most layout owner's first response would be to pick up engine 42 and replace it with an operating engine and I must confess I have to fight this initial reaction. But I believe there is a better way to deal with this and that is to follow the philosophy from my 2010 MER article. In the rest of this article I will walk through the actions taken to deal with the issue engine 42 presented.

Furnace is the first stop in the dark territory on the Blue Ridge route of the E&P (*see figure 2*). The station does not have communications with the rest of the railroad and No. 30 was dead on the main. Train 5 the *Mail Express*, was due into Furnace shortly and the two trains were scheduled to meet in Stanley at 11:00 AM. Since No.30 was dead on the main, the E&P Rule Book rule 99 required flagging protection, which was provided while the crew worked on the problem.

- ***99.*** *Except where Block Signal Rules are in effect, unless otherwise protected by train order, rule or special instructions, trains or engines must provide rear end flag protection on the same main track as follows:*

When Stopped: Flagman must go back immediately with flagman's signals a sufficient distance to insure protection,...

Meanwhile the dispatcher was dutifully tracking the progress, based on timetable 19, of Nos. 30 and 5 (also in dark territory and out of communication on the Shenandoah Route) and waiting for the report from the Swift Run tower operator of the arrival of No. 5 scheduled at 10:46 AM.

After the arrival at Swift Run, No. 5 would be backing down the Blue Ridge Route through Furnace to a meet with No. 30 (now No. 31) in Stanley where No. 31 would depart after the arrival of No. 5. Sitting at the bottom of the hill on the siding in Hood was Extra 44 East (also known as the Broadway Turn) waiting for the arrival of No. 31. But none of this was going to happen.

Right on schedule at 10:46 AM No. 5 reported into Swift Run and got the signals to proceed past the Swift Run wye and back down the Blue Ridge Route to Stanley via Furnace. The arrival of No. 5 was reported to the dispatcher and recorded in the Swift Run register. As far as the dispatcher was concerned the day was going well. The dispatcher updated his location board with the arrival of No. 5 and had No. 31 sitting on the siding in Stanley waiting the arrival of No. 5 as per the timetable.

No. 5 was backing down between Swift Run and Furnace when the crew spotted the flagman and brought the train to a stop. A quick conservation determined that No. 5 would not be going any further and the likelihood of getting No. 30 out of the way was remote. So the crew reversed No. 5 and proceeded back to Swift Run to report the issue to the dispatcher.

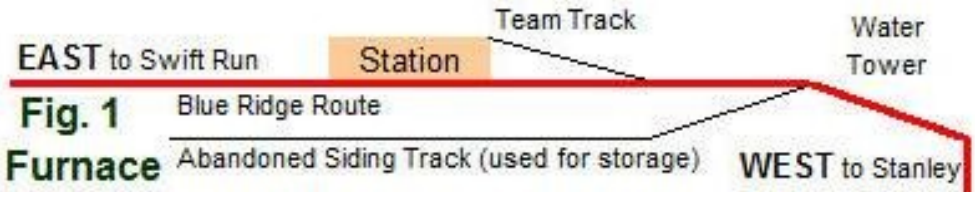

Fig. 1 Furnace

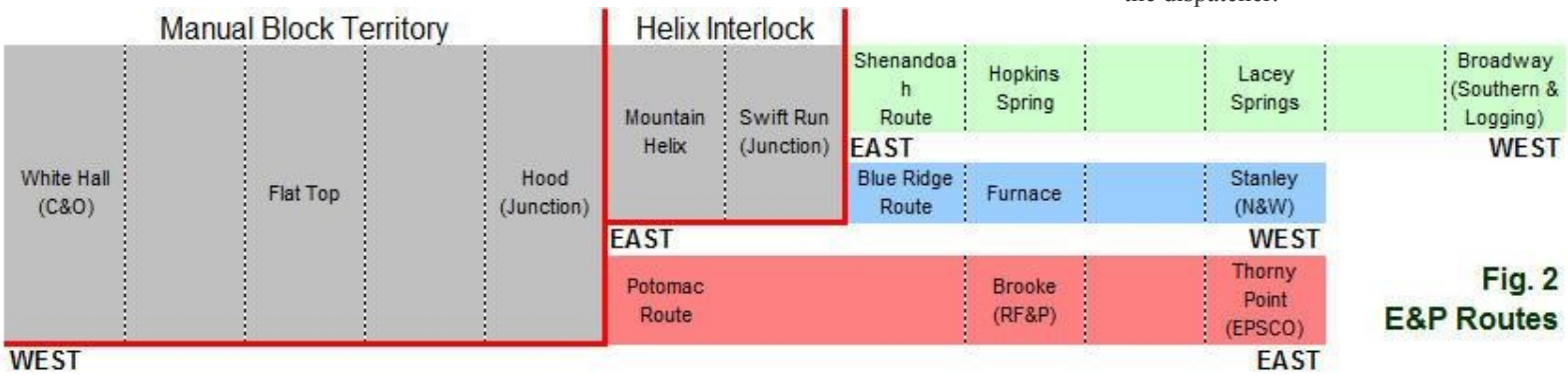

Fig. 2 E&P Routes

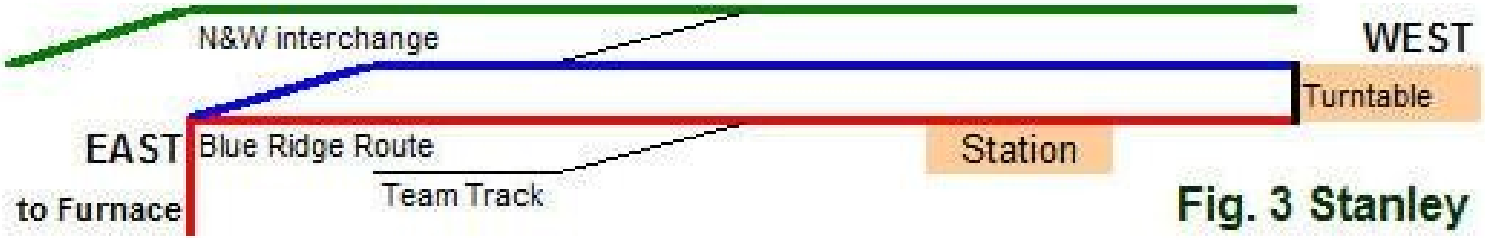

Fig. 3 Stanley

The operator at Swift Run was surprised to see No. 5's return ahead of schedule but not surprised to see No. 5 arrive ahead of No. 31 for it was not unusual for No. 5 to get back to Swift Run before No. 31. So the absence of No. 31 was not a concern. But when the conductor climbed down from the caboose and headed for the tower the operator knew something was not right. The conductor informed the Swift Run operator of the situation and an immediate call was placed to the dispatcher. The dispatcher's day had just taken a turn for the worse!

As it happened the superintendent was in the dispatcher's office when the call from Swift Run came in and much to the delight of the operator and dispatcher got involved in the situation and solution. The operator, dispatcher and superintendent discussed the options and came to the conclusion to have No. 5 take over the consist of No. 30 and also transport engine 42 as a dead engine. However the superintendent would not allow the movement of engine 42 with any of the wood passenger cars. So this meant No. 5 would have to go back to Furnace pickup the consist assigned to No. 30 bring it back to Swift Run and place it in the clear on the Shenandoah Route. Then back to Furnace to pickup engine 42 and back to Swift Run to pickup the combined consist of Nos. 5 and 30. This would place engine 42 behind engine 31 and in front of the combined consist where it could continue with the rest of its scheduled run. (In the model world a dead engine closely resembles a bolder so once we had engine 31 coupled to engine 42, we

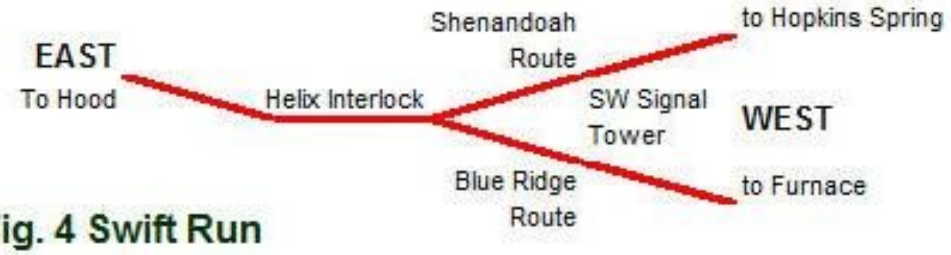

Fig. 4 Swift Run

The Swift Run operator, Steve Robbins, has just become aware of the issue. No. 5 is left of the green caboose and No 30. is right of the yellow caboose.

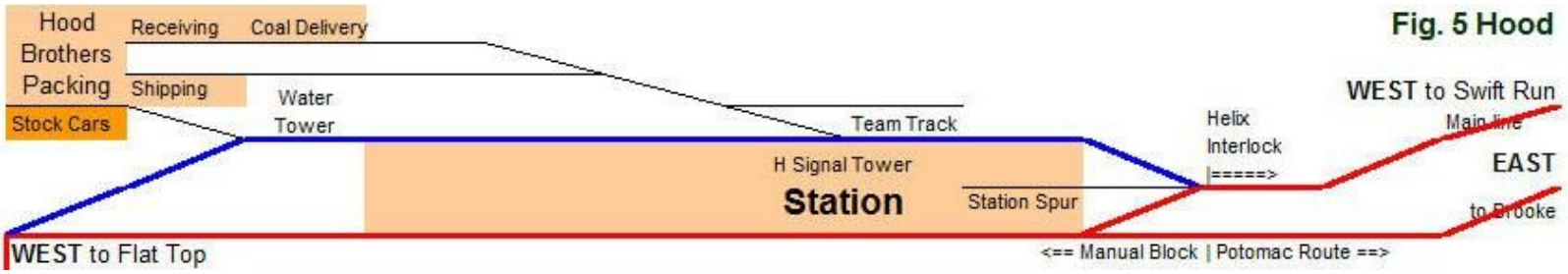

Fig. 5 Hood

would pull 42 from the layout. Some concessions to the model world have to be made.)

Armed with this plan No. 5 left Swift Run and headed back to Furnace where it picked up the consist of No. 30 which consisted of a baggage, coach and caboose and added it to its consist of an RPO and caboose and returned to Swift Run.

The Swift Run operator then cleared No. 5 onto the helix interlock so it could proceed through the wye and place the combined consist on the Shenandoah Route. All of this was reported to the dispatcher and since all of these moves were within the original authority of No. 5 no orders or clearances were needed. (At least that is the way we handled it.)

But this day was not going to plan and this new plan would be no exception. Just east of Swift Run on the helix interlock is a 2.5 percent grade with a somewhat steeper grade right at the top just before the wye. And you guessed it, engine 31 could not get the combined consist up the hill and in the clear on the Shenandoah Route. So another call was made to the dispatcher to inform him we now had No. 5 stuck in the helix interlock just east of Swift Run blocking both the Blue Ridge and Shenandoah Routes.

Another discussion was held between the operator, dispatcher and superintendent and it was decided to bring the Broadway Turn past the restricted semaphore in Hood protecting the helix interlock, up the helix, then cut its engine 44 off and use it to help engine 31 get the combined consist in the clear on the Shenandoah Route. Then engine 31 would go back to Furnace pickup engine 42, bring it back to Swift Run, pickup the combined consist, and again with the help of engine 44, get this consist past Swift Run onto the Blue Ridge Route where it could proceed on to Stanley. The Broadway Turn would then proceed on its way down the Shenandoah Route. All of these moves were within the scope of the Broadway Turn's and No. 5's original orders and clearances so again no orders or clearances were needed. Only verbal authority from the Hood operator to past the restricted semaphore protecting the helix interlock was needed as per the E&P Rule Book rule 607.

The engineer of No. 5, Bruce Kaufman, is about to get stuck on the hill just east of Swift Run.

> ***607.*** *If an interlocking signal cannot be changed to display other than STOP indication, the Control Operator may, after complying with Rule 961 and obtaining authority from the Train Dispatcher, verbally authorize train or engine to pass such signal. The movement may then be made as authorized at Restricted speed.*

But before this could be related to the operators at Swift Run and Hood the crew of No. 5 and the combined consist had managed, by pulling further down the helix to get a running start, to get everything in the clear on the Shenandoah Route. Cancel the Broadway Turn helper plan. Back to the original plan.

Just as engine 31 was about to pull back into the helix interlock to proceed back to Furnace, engine 42 arrived at Swift Run. It seems the crew of 42 was able to get the engine running in reverse but still not able to run forward. Another call was placed from the Swift Run operator to the dispatcher.

More discussions were held between the operator, dispatcher and superintendent and it was decided to run 42 as a light engine extra from Swift Run to White Hall and continue with the plan for engine 31 to complete its run to Stanley and back to White Hall with the combined consists of Nos. 5 and 30. So the dispatcher wrote orders for engine 42 and a clearance to allow Extra 42 West to proceed from Swift Run to White Hall.

> *Engine 42 run extra Swift Run to White Hall.*

Looking at the track diagram, one might think this order should have been for Extra 42 East but direction on the E&P is determine by the direction of the train between White Hall and Hood. In this case engine 42 would be traveling west between Hood and White Hall so it was designated as Extra 42 West even though it was proceeding east out of Swift Run. No orders were needed for the combined consist of No. 5 and No. 30 since the original clearance and timetable authority was still in effect for No. 5 which covered all the moves of the combine consist. Everything was appearing to come together.

Skip Barber, originally the engineer of No. 30, now the engineer of Extra 42 West, is cleared out of Hood for White Hall as the Broadway Trun waits to the right of the station.

Extra 42 West was given the green semaphore to the helix interlock and proceeded down the hill. No. 5 was given verbal authority to proceed past a restricted semaphore and then back to Stanley. Extra 42 West made it to White Hall and the roundhouse where it would later undergo inspection and repair. After the arrival of Extra 42 West in Hood, the Broadway Turn proceeded up the hill and into dark territory on the Shenandoah Route. (We made an error here which I will explain later.) No. 5, with the combined consist, made it to Stanley and back to Swift Run where it lost its timetable authority because it was now over two hours late. (The E&P Rule Book rule 82 states that trains loose their timetable authority if they are over two hours late.)

Regular trains more than two hours behind either their schedule arriving or leaving time at any station lose both right and schedule and can thereafter proceed only as authorized by train order...

(I know the standard is 12 but that rarely happens in the model world so to force this issue I reduced the period to two hours.)

No. 5 was actually over two hours late when it left Furnace for Stanley but because of Special Instruction 7 to Timetable 19, No. 5 could continue its run to Stanley and back to Swift Run without orders.

7. SPECIAL RIGHT AND SCHEDULE AUTHORITY PROCEDURES. *Any scheduled train that is over two hours late and is located between Swift Run and Broadway on the Shenandoah Route or between Swift Run and Stanley on the Blue Ridge Route will retain its right and schedule until its arrival at Swift Run at which time it looses both right and schedule and must obtain orders and clearance to proceed.*

But now that it was back at Swift Run it needed orders to proceed back to White Hall. So a run-late order was written and then No. 5 continued on to White Hall without incident.

No 5 engine 31 run two hours late Swift Run to White Hall.

But the day was not over for the dispatcher. The E&P only has one coach which all passenger trains must wait for. This means all future passenger trains were over two hours late and without right or schedule. So the dispatcher wrote orders for the three remaining passenger trains Nos. 20, 21 and 10, to run two hours late to their schedule. (After looking at some of Steve King's material I believe this was not the correct way to handle these or No. 31.)

No 20 engine 43 run two hours late White Hall to Broadway
No 21 engine 43 run two hours late Broadway to White Hall
No 10 engine 44 run two hours late White Hall to Thorny Point

Finally the dispatcher had everything back under control and moving as smoothly as possible given the circumstances of the day.

We probably made several errors in our orders, clearances and authority for trains to move but one that we are aware of is allowing the Broadway Turn to get into dark territory on the Shenandoah Route without first writing the orders for Nos. 20 and 21 and giving the Broadway Turn copies. Had we done that we would have prevented the Broadway Turn from waiting in a siding for two hours until the delayed No. 20 lost its right and schedule. And when No. 20 did arrive at Hood we could not get it up the hill until the Broadway Turn reappeared at Swift Run because we had no way of getting orders to the Broadway Turn.

So the breakdown of one engine provided many operational opportunities and lessons in dispatching and train orders. In fact many of the attendees said it was the best session on the E&P and solving the problem added a lot of fun to the day. (We didn't ask the dispatcher.) One caveat to this is that your equipment must be in top condition so problems like this are unusual and provide an opportunity to learn.

So next time you have something like this happen, don't just grab the offending piece of equipment. Stop and think about how to address the situation in a prototypical way. It could add a lot of fun and education to the session.

I am interested in any feedback you might have on what we did right or wrong.