National Transportation Safety Board
Office of Railroad, Pipeline and Hazardous Materials Investigations
Human Performance and Survival Factors Division
Washington, D.C. 20594

December 10, 2016

HUMAN PERFORMANCE GROUP CHAIRMAN'S FACTUAL REPORT

A. ACCIDENT

NTSB Accident Number:	DCA-16-FR-007
Date of Accident:	April 3, 2016
Time of Accident:	7:49 a.m.
Type of Train and No:	Passenger Train No. 89
Railroad Owner:	Amtrak
Crew Members:	1 Engineer, 1 Conductor, 2 Assistant Conductors, 2 on-board service attendants, and 1 lead service attendant
Location of Accident:	Chester, Pennsylvania

B. HUMAN PERFORMANCE GROUP

Human Performance Group Chairman

Stephen M. Jenner, Ph.D.
Human Performance Investigator
National Transportation Safety Board

Group Members

Jonathan Hines
System General Road Foreman
Amtrak

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BLET-STF, Party Spokesman
Brotherhood of Locomotive Engineers and Trainmen

Willie Bates
SMART Spokesperson
SMART

C. SUMMARY OF THE ACCIDENT

For a summary of the accident, refer to the *Accident Summary* report, within this docket.

D. DETAILS OF THE INVESTIGATION

1. Behavioral Factors

a. Sleep/Wake/Work Hours.

The engineer's 72-hour work/rest schedule is detailed in Table 1. He told investigators that he did not have any sleep disorders, such as insomnia or sleep apnea. He also told investigators that on the day of the accident he awoke feeling tired, but "felt fine" and "wasn't overly tired" at the start of his shift.

Table 1. Amtrak engineer's 72-hour work/rest schedule.

Day	Duty Times	Activities at Home	Sleep
Friday	Worked a yard job from 3:59 p.m. to 12:00 a.m. (midnight)	Arrived home via car about 1:00 a.m.	Went to bed shortly after arriving home. Slept from after 1:00 a.m. to about 6:20 a.m.
Saturday	Received call time from crew dispatcher On duty 9:20 a.m. – 7:10 p.m.	Arrived home 8:30 p.m. Ate dinner. Went to bed at 9:30 p.m., fell asleep quickly.	Slept from 9:30 p.m. to 3:50 a.m. (Received call after 2:00 a.m. from crew dispatcher).
Sunday	Received 2:30 a.m. call from crew dispatcher. Drove to Penn Station (NY). On duty 5:25 a.m. at Penn Station.		

Additional Information. The engineer's normal scheduled days off are on Tuesdays.

Conductor and Assistant conductor -- Neither the conductor nor the assistant conductor indicated that either had any type of sleep disorder. Each stated that he felt alert when they went on duty Sunday morning.

2. Task Factors

a. Accident sequence.

The Amtrak train was operating on track 3, traveling about 106 mph, as it approached the area where track work was being performed in Chester, Pa. The track speed was 110 mph. About 6 seconds before impact, the engineer made an emergency brake application. The train slowed to about 100 mph when it collided with the backhoe.

b. Visibility of the track equipment.

The weather at the time of the accident was clear, with no precipitation. The track was tangent leading up to the point of impact. The LORAM machine on track 2 cast a shadow on the backhoe.

3. Medical Factors

a. Health / Medical fitness of the Locomotive Engineer.

At the time of the accident, the Amtrak engineer was 47 years old. His last medical examination was in June 10, 2015. His hearing was normal. He wears prescription glasses, and was wearing them while operating the train. He told investigators that he had no health issues, and his overall health was good. He also stated that he felt alert when he went on duty Sunday morning.

b. Post-accident Toxicological Tests.

In accordance with federal regulations, the Amtrak engineer, conductor, two assistant conductors, third shift train dispatcher and the first shift train dispatcher provided blood and urine specimens for post-accident toxicological testing.

The results for the conductor, assistant conductors and the dispatchers were negative. The results for the Amtrak engineer are discussed below:

Amtrak Engineer – Blood and urine specimens were collected from the engineer on April 3, 2016, at 1:18 p.m. and 1:30 p.m., respectively, at the Crozer Chester Medical Center in Upland, Pa . FRA's post-accident forensic toxicology report found the following: Positive for cannabinoids (urine and blood); positive for opiates/opioids (urine). All other results were negative.

On May 10, 2016, a medical officer from University Services provided the FRA with additional written information regarding the post-accident toxicology results for the Amtrak engineer. Specifically, they indicated the results were:

Positive for Marijuana (THC) – (urine) = 48.6 ng/mL
Positive for Marijuana (Parent) (blood) = 2.2 ng/mL

Positive for Marijuana (Metabolite) (blood) = 16.1 ng/ML
Positive for Morphine – (urine) = 1256 ng/mL

The letter further stated:

> On 5/17/16, University Services has re-reviewed the Positive for Morphine in the urine. The following is a summary of the Morphine test results and the basis for my determination:
>
> [The Amtrak engineer's] urine specimen was reported as positive for Morphine with a urine concentration of 1256 ng/mL. [The Amtrak engineer] suffered injuries and was treated in the ED Department and Crozer Chester Medical Center. The medical documentation indicated that [the Amtrak engineer] had been administered morphine on April 3, 2016 at 1135. This is consistent with the immediate medical management and the laboratory findings. The morphine has been re-reported as a negative to Amtrak.

Additional information about the engineer's toxicological results are discussed in the NTSB's Medical Officer's Factual Report.

4. Operational Factors

a. Training/Experience.

The Amtrak engineer began training as an engineer with the New Jersey Transit (NJT) in March, 1999. He completed the required training in about 15 months, and became a promoted engineer in June, 2000. He worked in that capacity for several years (both in train yards and in passenger service). He transferred to a management position (Road Foreman) with NJT from 2007 to 2010. In 2010 he got assigned to the Traffic Operations Center (TOC) and worked there for about 9 months. Immediately afterwards he returned to train service and spent the next few years running trains out of New York. He hired on with Amtrak in May 2014 and began training for locomotive engineers. He became a promoted engineer with Amtrak in June, 2015, and has worked over the accident territory ever since. At the time of the accident he had been assigned to the extra board (NY crew-base). The last time he operated over the territory was Saturday April 2, 2016 (9:20 a.m. to 7:10 p.m.).

The Amtrak engineer had passed several Train Service Engineer examinations required for his engineer's certification over the last year. These included: Efficiency test, medical examination (hearing and vision), knowledge test, operating rules; prior employment review, state review, NDR review and EAP review. He passed his last skills performance/monitoring ride on January 1, 2016.

b. Accident trip.

On the day of the accident, the Amtrak engineer received a call from the crew dispatcher after 2:00 a.m. for an assignment originating at Penn Station (New York) beginning at 5:25 a.m.

He arrived to work and participated in a job briefing with other crewmembers. (He told investigators that he did not have a From D for the Maintenance of Way (MOW) work at Chester, though he was aware that work was being done in that area). He departed Penn Station, on time, at 6:05 a.m., operating Amtrak Train 89. The weather north of Philadelphia, Pa. was windy and raining, and the train experienced occasional wheel slips. The weather began to clear as the train approached Philadelphia, and his train no longer experienced any wheel slips south of Philadelphia. Overall, his trip from New York to Philadelphia was uneventful.

Amtrak train 89 had all clear signals as it departed Philadelphia approaching Chester, Pa. The engineer was operating the train on Main Track No. 3. He told investigators that the trip to this point had also been routine.

The Amtrak engineer, operating his train at 106 mph (the speed restriction approaching the work site was 110 mph) did not see any flag men or whistle boards as he neared the area in Chester where the track work was being conducted. He soon observed a large piece of equipment (the LORAM machine) on track 2. Seconds later, he detected a backhoe on track 3. He immediately sounded the horn and applied emergency braking. He continued to sound the horn before lying down on the floor of the locomotive just before impact.

During the impact, the engineer felt the locomotive lift off the tracks. When the train stopped he was very shaken and slowly stood up. He attempted to use the radio but it was inoperable. He also looked out the side door and observed that all the passenger cars were still on the rail. He then moved to the rear cab for a few minutes. He went to the rear cab of the locomotive to try to exit from there, but saw oil and other fluids on the side of the locomotive and he did not believe he would have been able to safely exit the engine. After that, the conductor arrived and spoke to the engineer. EMS later arrived, and transported the engineer to a local hospital for evaluation and to provide specimens for post-accident toxicology testing.

5. Amtrak Employee Interviews

a. Conductor of Amtrak Train 89

The conductor went on duty at 5:25 a.m. at Penn Station in New York. He held a job briefing to discuss the first run. The employees in attendance were the engineer and two assistant conductors. They had no information regarding Form Ds that were in effect. The first three cars of the train were designated for "regional passengers" (NY to Washington D.C.). The rest of the train, 6 coaches and one baggage car on the rear, were scheduled to make the entire trip to Savannah, Georgia. The conductor told investigators that the run to Philadelphia was uneventful. More than 80 passengers boarded the train in Philadelphia.

The conductor was stationed in the fourth car from the locomotive. He reported hearing no radio traffic from the dispatcher, or from roadway workers. After passing Chester Station, he felt heavy braking and heard the engineer sound the horn in a long continuous blast. Due to the heavy braking, he and the passengers that were standing were thrown off balance. Some people were thrown to the floor or against bulkheads and seats during the emergency braking after the impact with the track equipment. Some passengers panicked, thinking that the accident was a

possible terrorist attack. After calming the passengers and containing them inside the train as best they could, he delegated the responsibility to make verbal announcements to the passengers in the train because the public address (PA) system did not work after the accident. (It was working properly prior to the accident). The first assistant conductor made the initial "Emergency" call over the radio, and was instructed by the conductor to move the people that were ambulatory to the rear of the train and instruct them to stay on the equipment, to stay off the live tracks.

The conductor observed three passengers who appeared seriously injured in the first car. They received medical attention from a physician, who was a passenger on the on the train. One or more first aid kits was used.

Firefighters from Chester PA and EMTs from Crozer Chester Medical Center were the first to respond to the scene. They set up a triage location at the Trainer United Methodist Church, a quarter mile from the accident scene. The conductor was in place to guide first responders to the most severely injured. The engineer and 1st assistant conductor went for treatment of minor injuries and were released.

b. Assistant Conductor of Amtrak Train 89

The assistant conductor was hired by Amtrak in July 2015, and marked up for service October 2015. He is based in New York, and is an extra-board employee.

He went on duty April 3, 2016 at 5:25 a.m. He performed a job briefing with his conductor and engineer. The crew did a class 2 brake test. After departure the engineer made a running brake test.

He worked the first three cars and made required PA announcements. He walked the train while it was in the station to check for any hand brakes that may be applied. He took no exceptions with the equipment. The train was already on the Amtrak platform to load passengers. The assistant conductor stated that the conductor assigned him to make announcements and to take care of the first three coaches.

They made a passenger stop at Philadelphia station. As the train traveled to Chester, Pa, he heard the horn sound and then felt the train go into emergency braking. He said about 5 seconds later he was thrown to the floor, and observed objects flying into the window and knocking it out.

When the train stopped he used his radio to make an emergency call to the dispatcher. He observed that at least 3 passengers appeared seriously injured. In addition, some of the passengers from the first train car self-evacuated and ran across the tracks. The conductor, who had walked from the 4^{th} car to the 1^{st} car, told him to get all passengers back on the train. After getting all the passengers back on the train he instructed them to walk to the back of train.

The assistant conductor heard the conductor using his radio in an attempt to communicate with the engineer. He also heard the conductor talking to the dispatcher and telling him that they needed medical personnel to get to their location immediately.

The assistant conductor stayed with the medical personnel and passengers until all were evacuated from the train. After all the passengers evacuated from the train he was taken to the hospital and received medical attention.

c. Third Shift (of April 2nd) Train Dispatcher

Training and Experience. -- The third shift train dispatcher was hired by Amtrak in 2007 as a Block Operator on the Mid Atlantic Division and was promoted to the position of train dispatcher in 2009. He had worked as a train dispatcher since that time. He had been qualified to dispatch trains on CETC (Centralized Electrification & Train Control) Section 4, which extends from Penn Interlocking (exclusive) to Ragan Interlocking (exclusive), for several years.

Activities during his shift. -- The third shift dispatcher went on duty at 11:30 p.m. on April 2, 2016, and dispatched trains on CETC Section 4. He told investigators that his shift was routine. During his shift, track work was being performed as part of a "55 hour track outage," which began on the evening of April 1st. As a result, a track outage, by Form D A1403 of April 2, 2016, (in the name of the night foreman who was the Employee in Charge), which was in effect on track No.2 between Baldwin and Hook interlockings. Also during his shift, foul time authority had been requested and granted intermittently throughout the evening and into the morning of April 3rd by the night shift foreman for tracks No. 1, 3 and 4. He stated that he had applied appropriate blocking to these track on his dispatcher's console; and recorded this on the foul sheets.

The third shift dispatcher was unaware of any Supplemental Shunting Devices (SSDs) being placed on any of the tracks that were being fouled. The only way he would know that an SSD was placed on any track would be if the EIC advised him that such action had taken place [Amtrak Special Instruction 140-S2 of GO 601]. He stated that when a positive shunt is placed on a track in the field, it is shown on his track model display (on his computer console) by way of a red block (referred to as a TOL or Track Occupancy Light) that would extend the length of the track segment for which it was applied (if blocking is applied, a TOL segment appears blue with a red outline above and below the affected track segment). He did recall these types of indications as he worked through the evening and into the morning, but explained that when track work is taking place, there are numerous reasons a track could appear shunted (red block) or otherwise "occupied", but was never advised by the EIC during his shift that any TOL's were related the placement of an SSD. He also confirmed that the EIC did not ask if any TOL's or positive shunts appeared on his computer console for the segments of track in the vicinity of where the 55 hour track outage took place. He told investigators that in the past he had been asked by EICs to verify if a positive shunt, TOL, or "a light", appeared on his console while work was being performed.

The third shift dispatcher told investigators that the radio communications were sporadic near the location where the 55 hour track outage was taking place. He stated that sometimes the radio reception seemed adequate and at other times, it did not. He also indicated that there were certain locations and/or times when radio communications were less then favorable or unclear.

The third shift dispatcher also discussed the procedures when foreman, who will be going off duty, wants to turn his foul times over to an incoming foreman. In these instances, the outgoing foreman must first relinquish foul time authority and report all clear of the associated tracks. The incoming foreman would subsequently re-request Foul Time with the Train Dispatcher in order to resume any foul time authority.

The shift turnover between the third shift dispatcher and first shift dispatcher began shortly before 7:00 a.m. The third shift dispatcher continued dispatching duties until about 7:15 a.m. and then went off duty.

d. First Shift (of April 3rd) Train Dispatcher

Training/Experience. -- The first shift train dispatcher began working for Amtrak as a Block Operator in February 1988. He eventually became qualified to dispatch trains on every territory in the office (Sections 1, 2, 3, 4, 5, and 6). He was qualified as an Assistant Chief Dispatcher, and had served as an Acting MTO (Manager of Train Operations) several times.

Pre-accident actions.-- The first shift train dispatcher had been off duty the previous two days (Friday April 1 and Saturday April 2). He arrived at the dispatch center Sunday morning and conducted the shift turnover/transfer with the 3rd shift dispatcher between 6:45 a.m. and 7:00 a.m. Afterwards, the third shift dispatcher continued dispatching operations for another 15 minutes. During this period the third dispatcher cleared up foul time for Train 160 to operate through the work area, then gave the fouls back about 7:11 a.m. He departed the dispatch desk at 7:15 a.m.

The first shift dispatcher then sat down and took over dispatching operations. Shortly thereafter, the day shift foreman called the first shift dispatcher and requested to take the track out of service.[1] The first shift dispatcher said to give him about 2 minutes and call back because he (the first shift train dispatcher) had just started his shift.[2] The day shift foreman called back (7:24 a.m.) and the train dispatcher issued him Form D A1401 at 7:26 a.m. (thereby taking track 2 out-of-service). The first shift dispatcher asked if he was going to be fouling the track like the night shift foreman. The day shift foreman responded,

> I ya (yeh) I got to check to see how much to do at this guy's got to go he has to …he needs three and four (ah) and as much as possible for now…I don't know how much longer with that. But my backhoe operator should be getting in out here in about an hour.

The dispatcher also told the day shift foreman to have the night shift foreman call him (the dispatcher) to cancel his Form D. This was the last communication between the dispatcher and the day shift foreman until after the accident.

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[1] Amtrak Special Instructions Rules require the use of a radio when issuing a mandatory directive unless it is impossible to use the radio. The day shift dispatcher told investigators that Form Ds and fouls are normally called in by workers using a radio. He also stated that radio issues are common between Hook and Baldwin.

[2] For the complete transcript of the first shift train dispatcher's conversations, see NTSB's In-cab Voice Recorder Factual Report.

The night shift foreman called at 7:27 a.m. and cancelled Form D A1403 at 7:28 a.m. The night shift foreman also requested to release his fouls at that time. The first shift dispatcher cleared fouls on tracks 1, 3 and 4 – between Hook and Baldwin - with confirmation. Foul time under the night shift foreman was released at 7:28 a.m.[3] This was the last time the first shift dispatcher heard from the night shift foreman before the accident.

Based on their earlier conversation, the dispatcher was anticipating that the day shift foreman would call back for foul time after the night shift foreman gave up his foul times. He told investigators,

> "In my mind, I was expecting that call to happen within seconds, if not a minute after Robinson cleared up his foul time…I was anticipating, he has to be calling for at least one track, either three or one, to get a foul, because I'm figuring they going to foul on the adjacent track, as long as possible…but I'm anticipating, okay, you all out there. The backhoe driver has to get there soon."

Consequently, the dispatcher kept his options open to run trains and give foul time for a Northbound Amtrak train departing Wilmington, DE and southbound train 89 departing Philadelphia. (Signals at Phil Interlocking were not displayed for Train 89 until Train 89 was out of Philadelphia; and the signals at Baldwin were not displayed for Train 89 until Train 89 was by Phil Interlocking). The dispatcher had decided that if foul time was requested on Track 3 then Train 89 could be routed to Track 4 at Phil.

Post-accident actions.-- Shortly after the accident (time of call 7:50 a.m.) the day shift foreman called the first shift train dispatcher (at 7:50 a.m.) to report the accident. He also asked the dispatcher if the night shift foreman had given up his foul time. The dispatcher confirmed that he did. The dispatcher told investigators, "you can hear that he was frantic." The day shift foreman told the dispatcher that a train had struck a backhoe, and that ambulances were needed. On the dispatch console, an Emergency Plate displayed on Main Train 4. The first shift dispatcher then told the Assistant Chief about the incident that Train 89 ran into the back of some equipment. The dispatcher had called the engineer three times but did not get a response. He then called the conductor, who did respond, but the transmission was poor. The dispatcher requested the conductor call back using a telephone, which he did; however, his call went to Section 6, who then brought the phone to the Section 4 dispatcher. The dispatcher was relieved from Section 4 Desk at 8:45 a.m.

e. The Night Shift Foreman and the Day Shift Foreman

This section focuses on the exchange between the night shift foreman and day shift foreman as it relates to foul times and track 2 being out of service. Excerpts taken from the interviews of two foreman of are summarized below.

[3] The signal at Baldwin was pulled up at 7:38 a.m.

Use of cell phones and Radios for track out of service and foul time.

The day foreman told investigators that cell phones were commonly used when talking to the train dispatcher about the track being out of service. However, he indicated that for foul times, radios were to be used. He stated,

> Normally, and I mean normally, and I mean just about all the time, you always foul with a radio communication.

The day foreman told investigators that he would typically use a radio when talking to train dispatchers about foul time. He told investigators,

> I mean just about all the time, you always foul with a radio… the reasoning would be if you – operators, all the operators could hear…that way everyone knows you're clearing a foul.

The day foreman was asked if the night foreman had been using the radio and had given back the foul time, if he would likely have heard it. The day foreman stated,

> I would have….Maybe I'll put it this way. Maybe I wouldn't have heard [the night foreman] per se, or maybe I would have heard CTech4 repeat, you know, clear the foul. Sometimes you don't pick up all the portable radios, but I definitely would have picked up CTech4 relaying the message, you know, clear time, you know, clear fouling, 3 track hooked to Baldwin at this time. I would have heard that from CTech4.

The night foreman explaining why he gave up his foul time.

Investigators asked the night foreman why he had stated he needed to give up his fouls exactly when giving up his Form D. The night foreman stated, "Because I was given – I was no longer in control of the track, and I was not the employee in charge of on-track protection. When he took that Form D, and his Form D became effective, he now became the employee in charge of on-track protection." The night foreman also indicated that there could only be one EIC at any work site.

The day and night foremen's discussion about track out of service and foul times.

The day foreman told investigators that when he arrived on scene, the backhoe was on track 3. The day foreman told investigators,

> So that's why I asked if he (the night foreman) had a foul. He said he had a foul on all the tracks, and then my response to him was well after you give your foul up, you know, I'll get the fouls. Which is in that case you would sit there and say well, CTech4 or [the night foreman], I need you to clear 4 track, 3 track, whatever the case. Take your machine off, clear the foul, clear all your fouls and then you go home and then [I] will take over after that.

The day foreman told investigators that after he talked to the dispatcher and got the track out of service in his name, he informed the night foreman of this. He told investigators,

> After I got the track out I talked to him [the night foreman]. I said I go the track out, and I did ask him – because I noticed the backhoe was down there.

Investigators asked the day foreman if he and the night foreman had any agreement about releasing the fouls. The day foreman told investigators,

> All I told him was when you are clear of all your fouls, don't bother getting any more fouls. I'll get them for the rest of the day, because he would be going home.
>
> Last I talked to [the night foreman], he had a foul on all three tracks. I assumed everything was still fouled because I didn't hear nothing. Nobody heard anything on the radio.
>
> After I got done talking to him about getting the track out, I have it in my name, he knew that. I asked about the fouls. That's when I got my gear, went over to 2 track and walked down to where the machine is. I did not see him again until after the accident.

The day foreman also told investigators that he would not work off of somebody else's foul time who is going off shift. He stated that two persons could not foul the track at the same time.

<u>Whereabouts of night foreman after he released Form D.</u>

The day foreman was asked about his knowledge of the whereabouts of the night foreman after they had spoken face-to-face while on scene and had exchanged authority of Track 2. The day foreman indicated that he could not account for the night foreman's location. The day foreman told investigators:

> I would expect him to be in the area. I would expect him once he clears his foul to make sure everyone's clear.

When asked if the night foreman drove away, the day foreman said,

> I don't know if he moved farther south, you know, in the area. I mean like I said, I didn't pay attention to what he was really doing. I got all my stuff together and then I started walking up to where – because I wanted to see what was done too.
>
> Maybe he backed up a little bit farther somewhere else. You know, I didn't look for him. I got my stuff together and then walked over to the my 2 track (inaudible) sort of checked and walked up where the machine was.

<u>Radio use, and use of cell phones when necessary.</u>

The night foreman told investigators that the train dispatcher would initially try to reach him using a radio "when he needed the foul – whatever track to be released from the foul, he would try me on the radio." If the radio reception was poor, the night foreman would tell the dispatcher that he (the night foreman) would call him back on the cell phone.

The night foreman indicated radio issues were not a constant issue: it was an on and off (intermittent) problem. However, his communication to the train dispatcher at 7:11 a.m. was via radio.

The day and night foremen's discussion about track out of service and foul times.

The night shift foreman's first conversation with the day shift foreman was after they parked their trucks near the work site. (At that location they could see the work site, including the LORAM machine and the backhoe). The night shift foreman told investigators:

> "I got out of my truck and I walked around his truck to talk to him…He said, 'What do you have out?' and I said, "I have foul on one, three and four, and two is out.'"

They continued to discuss the track work when the day foreman's phone rang. After that phone call, the day foreman told the night foreman to:

> "Go ahead and cancel your Form D." I go "Huh?" He said, "Go ahead and cancel your Form D." I go, "Okay. What do you want? I asked him, "What do you want me to do?" I said, "Call on the radio right now?" He said, "You…just call them on the phone." I said "Okay," and I stopped. I said, "But if I cancel my Form D…I have to give up my fouls." He said, "I know what you have to do. I'm the one telling you to do it." So, I said, "All right, but you know, they are doing something." I said, "You will have to get your fouls immediately," just like it's always done. He said, I know what I have to do." I said, "All right."

The night foreman told investigators that he asked the day foreman,

> "Do you want me to call them on the phone or mic (radio)?" He said, "Just go ahead and call them on the phone. Doesn't matter."

At 7:28 a.m., the night foreman used his cell phone to call the train dispatcher to cancel his Form D. During the same conversation he also cleared his fouls on track 1, 3 and 4.

Immediately after that conversation, he spoke with the day foreman, who was at his truck putting on his gear and preparing himself for his job. According to the night foreman, he told the day foreman,

> "Go ahead and call. I'm done. He took all my stuff from me." He says, "I got it," like this, and I just said, "Okay, all right." I said, "Well, all right, I'm out of here." He said, "Good bye."

The night foreman's expectation of the transfer of foul times between him and the day shift foreman:

The night shift foreman told investigators:

> "The way the Form D was seamlessly transferred is the expectation that I had for the fouls and that's what we discussed. I said, 'Soon as I release them, you know you have to take them.' He said, 'I know what I have to do.' So, within that conversation, he had the Form D. It was a seamless transfer, and also with the fouls,

he said I – I said, 'You have to take them, you know, soon as I release them," because they're – he said, "I know what I have to do.'"

"And within the conversation, couple minutes later, 'John, I'm all cleared up. Go ahead. Get your fouls that," you know, "I got it.[4]'"

"I thought that it would have been a seamless transfer, meaning that he had already spoken about the fouls as soon as I hung up the phone, he would have got right on the radio or phone or whatever, and just transitioned right into them."

"So, within that, I thought that there was a seamless transfer…"

The two foremen not overhearing each other's conversations with the train dispatcher.

Investigators asked the night foreman if he actually heard the day foreman get his Form D (when you had this conversation). They night foreman replied "No."

Investigators also asked the night foreman if the day foreman could hear him cancelling his fouls during the night foreman's conversation with the train dispatcher. The night foreman stated,

> You know what? I'm not going to assume that he heard that, but once it was done, the conversation that he told me to have, I let him know that it was done.

End of Factual Report

Compiled by: /s/ Date: December 10, 2016

Stephen M. Jenner, Ph.D.
Human Performance Investigator

[4] The night foreman stated his interview: "When someone says, "I got it," they have the situation under control, that what I'm telling them, they already have handled or are in the process of handling."