



RRD21FR008
BNSF Railway
March 3, 2021
La Mirada,
California

National Transportation Safety Board

Factual Report

Accident

NTSB Accident Number:	RRD21FR008
Date of Accident:	March 3, 2021
Time of Accident:	0019 (PST)
Type of Train and No:	Mixed Freight Train, H-BARLAC1-02
Railroad Owner:	BNSF Railway
Train Operator:	BNSF Railway
Crew Members:	1 Engineer, 1 Conductor, 1 Familiarizing Conductor
Location of Accident:	La Mirada, California

Working Group

Ryan Frigo
Investigator In Charge
National Transportation Safety Board

John Manutes
Assistant Investigator In Charge
National Transportation Safety Board

Isaac McKeithen
Operating Practices Inspector
Federal Railroad Administration

Ryan Ringelman
General Director of System Safety
BNSF Railway

Thad Laferriere
Investigator
California Public Utilities Commission

Brian Fransen
Safety Task Force National Coordinator
BLET

Louie Costa
Director
SMART/UTU

Operating Crew

BNSF Train No. H-BARLAC1-02

Engineer: On duty 03/02/21, 1700PST

Conductor: On duty 03/02/21, 1700PST

Familiarizing Conductor: On duty 03/02/21, 1700PST

Train Consist

- Mixed Freight Train – Barstow, California to Los Angeles
- 81 Cars (73 loads, 8 empties)
- 3 head end locomotives (BNSF 8156, BNSF 6240, BNSF 7226)
- 2 rear DPUs (BNSF 7760, BNSF 3751)
- 9,295 Tons – 5,165 Feet
- Traveling West on San Bernardino Subdivision

Accident Description

On March 3, 2021, at 12:19 a.m. local time, a BNSF Railway (BNSF) conductor was killed while riding on the south-side ladder of the leading end of a boxcar from train H-BARLAC1-02 when it struck the side of a locomotive in the La Mirada, California, railyard. The train crew consisted of one engineer seated at the operating controls of the lead locomotive, the conductor positioned on the south-side ladder of the rear car (leading in the direction of travel), and one conductor participating in a territory-familiarization trip positioned on the north-side ladder of the same boxcar. The crew was working to remove 48 cars from the front of the train and leave them in the La Mirada railyard. At the time of the accident, the sky was clear, the temperature was 48°F, and the wind was calm. Figure 1 shows the accident scene.



Figure 1: Overhead view of the accident looking west towards Long Beach. The San Bernadino Subdivision main line are the right 3 tracks in the photo.

The Accident

The H-BARLAC1-02, consisting of 3 headend locomotives, 81 cars, and 2 distributed power (DP) locomotives on the rear of the train, departed Barstow Yard enroute to Hobart Yard, located in Commerce, California. The H-BARLAC1-02 had 48 cars to set out in Buena Park Yard, La Mirada, California, before it continued to Hobart Yard. After the job briefing, the crew headed to the train located in the Departure (D) Yard. The crew waited two hours for instruction to depart Barstow Yard because a train ahead was being yarded. After receiving the authorization to depart, the train left Barstow westbound onto the Cajon Subdivision, then changed to the San Bernardino Subdivision, and continued westbound towards Los Angeles.

The train arrived at CP Buena Park in La Mirada where it stopped at CP Buena Park signal at 12:08 a.m. on March 3, 2021. According to interviews, the crew then performed a job brief about the plan to set out the 48 cars in Buena Park Yard. After receiving the signal from the dispatcher to enter, the train proceeded west into the yard from main track #3.

To perform set out work at La Mirada railyard, the train crew pulled the entire train off the main track and into La Mirada railyard. The two conductors were to uncouple and separate the train into two separate portions, a front portion and rear portion. According to the surviving familiarizing conductor, the conductor and familiarizing conductor held another job briefing about what tracks were to be used for setting out the head 48 cars. The conductor planned to set out cars in tracks 6801 and 6802 and told the familiarizing conductor that he uses a set of palm trees as a landmark to determine where to stop the shoving movement.¹ Before beginning the movement, the conductor and familiarizing conductor ensured the west end lead switches were lined for their movement after which the conductor instructed the engineer to pull ahead 48 cars. After counting the 48 cars, the conductor instructed the engineer to stop the train and made the cut. This left the rear 33 cars and two DP locomotives on tracks 6803 and 6804 hanging out the east end of track 6803 and still occupying the yard lead (shown on the left in figure 1). This half of the train was scheduled to continue to Hobart Yard after the set-out work at the La Mirada railyard was completed and remained stationary throughout the accident sequence.

¹ Palm trees are not included as part of any BNSF provided training, formal familiarizing tools, or any job aids at LaMirada yard.

After receiving instructions from the conductor, the engineer then moved the front portion of the train forward to allow the conductors to line the switch for the adjacent track. After lining the switch, the conductors mounted the rear boxcar side ladders. At the time of the accident, the fatally injured conductor was directing the train movement while riding the boxcar's south-side ladder and communicating position and distance information to the engineer via radio. The familiarizing conductor was positioned on an opposite side ladder of the box car located on the north-side.

At approximately 12:14 a.m. the conductor and familiarizing conductor mounted Car Number TBOX 642811 on the leading end and the conductor instructed the engineer to begin moving the train. The train began to travel eastward in a reverse shoving move at about 8 mph alongside the stationary cars left in the yard. According to rail communications between the conductor and engineer, the conductor initiated the shove into track 6802 with an initial car count of 25 cars at approximately 12:15 a.m. The Conductor continued giving car counts of 20, 15, 12, 9, 7, and said, "Barlac let me get another, you know what Barlac bring it down to a stop, right here, over" to the engineer. It was approximately 7 seconds after the car count of 7 more was given, that the conductor stated, "bring it down to a stop, right here," then 4 seconds later he stated, "stop Barlac, stop," and 2 seconds later a final "stop!" After the 1st stop request, the engineer applied a full-service reduction of the automatic brakes and fully applied the independent brakes on the 3-headend locomotives.

The front portion of the train approached the train's rear DP locomotives, which were attached to the rear portion of the train and were occupying the lead track on the west side of the railyard. The boxcar on which the conductors were riding impinged the side of the rear-most locomotive, pinning and killing the conductor who was on the south-side ladder. Schematic drawings showing what happened in the accident are found in figure 2.

After the cars came to a stop, the familiarizing conductor told investigators that he called out for the conductor but there was no response. He then dismounted the car and searched for the conductor finding him pinned and crushed between the box car and the rear DP locomotive on the east end lead. He then stated that he notified the engineer. The engineer informed investigators that he notified the BNSF dispatcher that they needed emergency services for the conductor.

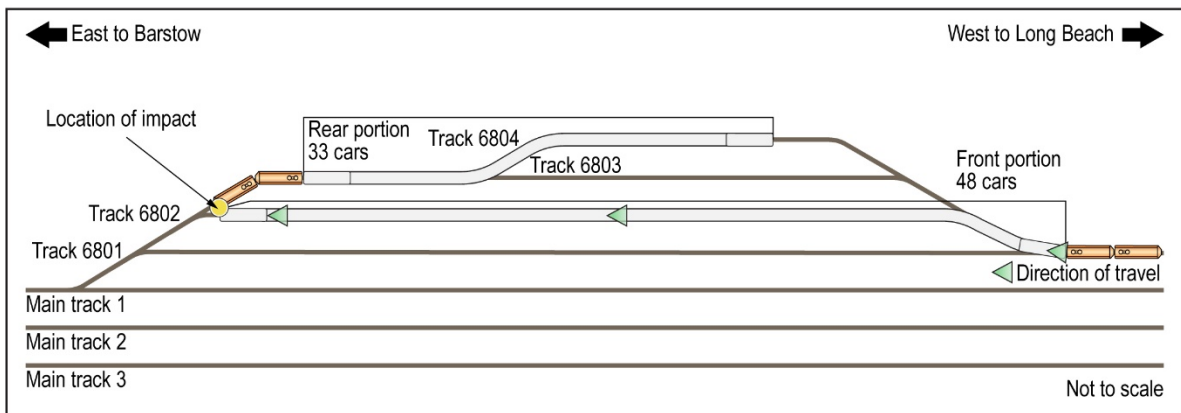
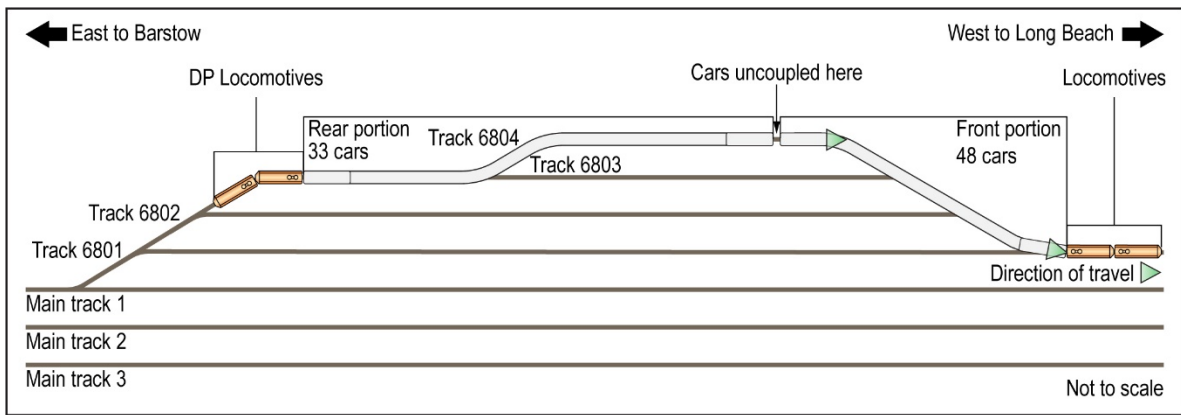


Figure 2: Schematic drawing showing movement sequence of the H-BARLAC1-02 crew.

Description of Buena Park Yard at La Mirada

Buena Park Yard is located on the municipal boundaries of Buena Park and La Mirada California and is part of the BNSF San Bernardino Subdivision. Timetable direction for the yard is east-west, and the maximum authorized speed is 10 mph as identified in the current timetable special instructions. The yard is used for switching and set out of cars for local customers in the area. The BNSF mainline tracks are located to the north of the yard. Train movements to and from the mainline are controlled by the BNSF Subdivision train dispatcher. At the accident location, there are four tracks used for railcar

storage. These tracks are tangent and there are no obstructions located in the space between the tracks.

Mechanical

Investigators reviewed the onboard records for train H-BARLAC1-02 and found that a Class I – Initial Terminal Air Brake Test was performed as required in accordance with Title 49 Code of Federal Regulations (CFR) Section 232.205 on March 2, 2021, at 3:10 p.m. in Barstow, CA. A locomotive daily inspection was performed on the on the same day. The controlling locomotive, BNSF 8156, was built in 2014 and received its last periodic inspection on November 2, 2020.

Investigators inspected the rear DPU locomotive positioned out to foul on the lead (BNSF 3751) and Car No TBOX 642811 after the equipment had been separated. Locomotive BNSF 3751 had damage to an area on the left side above the third axle and below the walkway. In this area, there was evidence of raking and scraping damage with paint loss and paint transfer beginning at the left stairway and stopping just above the second axle. There was also paint missing on the front corner of the fuel tank. Car No. TBOX 642811 had damage to the A-end right side-ladder. The vertical stanchions of the ladder were bent, torn and showed signs of paint transfer. The witness marks on the locomotive and boxcar were consistent with a raking/scraping collision. BNSF reported damage to equipment of approximately \$1300.

On March 5, 2021, inspectors from the FRA performed an air brake test and inspection on the portion of the train being shoved into track 6802 using the controlling

locomotive (BNSF 8156). Inspectors noted that one air brake service control valve on Car No. NOKL 571918 was leaking, which caused the car to have a short (5-inch) brake piston when applied. Inspectors also found that one brake shoe was worn out on Car No. TOFX 887031. Additionally, the inspectors conducted a successful functional test of the radio on Locomotive No. BNSF 8156.

Track

The yard track in the area of the accident was maintained by the BNSF Engineering department. FRA performed a walking inspection of the track in the area of the accident and did not identify any exceptions.

Operating Practices

The engineer was hired by BNSF on September 14, 1998. The initial engineer's certification was issued on February 20, 2004, and the current certification is good until May 31, 2022. The last computer-based rules training was completed on February 6, 2020. The engineer was operational tested 14 times in the year 2020.

The fatally injured conductor was hired by BNSF on July 26, 2013; and the conductor's certification was issued on September 7, 2018. The last computer-based rules training was completed on February 28, 2020; and the conductor was operational-tested 12 times in the year 2020.

The familiarizing conductor was hired February 24, 2018; and was operational tested 32 times between July 21, 2020, and February 21, 2021.

General Code of Operating Rules (GCOR) 6.5 - Shoving Movements

Equipment must not be shoved until the engineer and the employee protecting the movement have completed a job briefing concerning how protection will be provided. Employee must be in position, provide visual protection of the equipment being shoved and must not engage in unrelated tasks while providing protection. Equipment must not be shoved until it is visually determined that: The track will remain clear to the location where movement will be stopped. Please see Appendix A.

Clearance Points in Railroad Switching Operations

Due to track configuration and yard design, close clearances can be encountered in rail yards. To mitigate this risk, railroads are required by Federal regulation to implement procedures that enable employees to identify clearance points and a means to identify locations where clearance points will not permit a person to safely ride on the side of a car, in accordance with § 218.101(c). It is important to note that the regulation only requires a railroad to implement procedures and does not identify how clearance areas could be marked in a railyard.

In the La Mirada railyard clearance points are marked by orange paint on the base and web of the rail. These markings are placed in accordance with BNSF Track Engineering Standard 2508. BNSF engineering specification require that orange paint be applied to the base area of the rail in close clearance locations in yards, sidings, and secondary tracks. Distances of where the paint should be applied vary and is based upon track geometry and configuration.



Figure 3: Photograph taken post-accident. Car No. TBOX 642811 has been moved to the west to facilitate emergency response. Orange paint is present on the yard tracks indicating a clearance point.



Figure 4: Photograph of investigators examining the rear most DPU locomotive



Figure 5: Photograph looking east alongside the boxcar that was involved in the accident. Orange paint marking the clearance point can be seen on the base of the rail approximately 30 feet in front of the boxcar.



Figure 6: Photograph taken looking west at the west end of the railyard. Faded paint indicating a clearance point is located on the base and web of the rail.



Figure 7: Photograph taken looking west at the west end of the railyard. Faded paint indicating a clearance point is located on the base and web of the rail of several yard tracks.

Switching Operations Fatality Analysis Working Group

The Switching Operations Fatality Analysis (SOFA) Working Group is an established, voluntary, non-regulatory, workplace-safety partnership. On November 19, 2020, following the Tuscola accident, the SOFA Working Group issued a SOFA safety advisory that focused on the fact that 1 in 4 switching fatalities occur in close clearance/ temporary close clearance

situations and discussed a multi-level approach to hazard mitigation including:

- 1) Eliminating no clearance and close clearance areas through Engineering
- 2) Improving signage (where utilized) to be instructional, “stop and dismount”
- 3) Marking ALL permanent and temporary close clearance areas with clearly visible signage
- 4) Prepare employees to identify/avoid close clearance areas

The Safety Advisory is detailed in Appendix B.

BNSF Training - Identifying Clearance Points

BNSF training for new hire conductors includes several modules that cover clearance points as outlined by GCOR. Training is covered in both a classroom and field environment. Training documents sent to investigators include several slides with yard movement scenarios where clearance points are fouling are discussed. All new hire conductors are required to attend this training. See Appendix C.

BNSF Efficiency Testing

The BNSF efficiency testing program includes two sections that focus on equipment in the clear during yard operations. Both sections 109 (TYE) and 626 (MOW/MOE) cover this area. During these tests, employees are to be observed using the marked clearance point or determining the correct clearance point when markings are not visible.

FRA Interpretation of 49 CFR 218.101

As part of the investigation NTSB requested that FRA determine if the positioning and location of the rear (DPU) locomotives constituted a violation of 49 CFR 218.101 or any other regulation relating to “out to foul”. The FRA responded that the rear end of the train, located on the yard lead track was in the foul of track 6802 but it was not in violation of 49 CFR 218.101 due to the position of the track 6802 switch. See Appendix D.

Weather

The closest METAR (official weather) site was KFUL (Fullerton Municipal Airport)². The weather at 0053 PST, automated report (ASOS equipment), wind calm, 10 miles or greater visibility, clear skies below 12,000 ft agl, temp 9 C, dew point 4 C, altimeter 29.82 inHg. Sea level pressure 1009.8 hPa. Investigators also verified that there were no high clouds above to obscure the Moon light...at 0019 PST the moon was located at 125.91 azimuth (0 degrees is north), 25.43 degrees above horizon and was 79.4% illuminated (Waning Gibbous) see Appendix E.

² KFUL 030953Z AUTO 0000KT 10SM CLR 09/03 A2982 RMK AO2 SLP095 T00890033, KFUL 030853Z AUTO 0000KT 10SM CLR 09/04 A2982 RMK AO2 SLP098 T00940039 56010, KFUL 030753Z AUTO 0000KT 10SM CLR 10/04 A2983 RMK AO2 SLP099 T01000044 402500072

Radio Transcript

H-BARLAC1-02 Radio Communication Summary La Mirada, CA 3/3/21

Time Stamp (PST)	Communication
0014 :31	Conductor notifies engineer that he and the familiarizing conductor will be protecting the shove while riding a railcar and to initiate shove at 25 car lengths
0016 :35	Conductor provides a 20-car count
0017 :20	Conductor provides a 15-car count
0018 :02	Conductor provides a 12-car count
0018 :40	Conductor provides a 9-car count
0019 :06	Conductor provides a 7-car count
No Time Stamp (approx)	
0019 :12	4 seconds later conductor first request to stop
0019 :17	4 seconds later conductor second request to stop
0019 :20	2 seconds later conductor last request to stop

*Radio transcript was developed by working group members on scene.

Accident Site Observations of the Investigative Group

- The Group conducted on site observations during daylight hours and again during night hours.
- The Group determined there was ambient lighting in the yard on the evening of March 3rd.
- The group also noted that there were no BNSF light poles or other railroad yard lighting.
- The group noted the yard consisted of tangent track with no physical obstructions in the area.
- The group observed that the walking conditions were regular and even and free of obstructions.

Toxicology Report

Results from Post accident toxicological testing and CAMI testing are detailed within the Medical Factual report for this accident. The tests were negative for illicit drugs and alcohol.

Rest History

Investigators requested a sleep history from the fatally injured conductor's spouse. The following is paraphrased from the spouse's response: "The conductor slept well through the evening, averaging 6-8 hours of sleep. Once the conductor was home, it would be 10-12 hours before the railroad could call the conductor to come in. So, the conductor maximized sleeping opportunities. When the opportunity presented itself (outside of family obligations), the conductor would take a nap."

Date	Estimated number of hours of sleep
2/26/21	7
2/27/21	6
2/28/21	8
3/1/21	8
3/2/21	8

Interviews

The Group conducted 2 interviews during the on-scene phase of the investigation. Additional interviews were conducted in September 2021. Transcripts of the interviews conducted can be found in the public docket for this accident.

Interviews conducted on scene:

- Engineer
- Familiarizing Conductor

Interviews conducted in September 2021:

- Conductor
- Conductor
- Yard Trainmaster
- Night Trainmaster

Parties to the Investigation - Acknowledgment Signatures

The undersigned designated *Party to the Investigation* representatives attest that the information contained in this IIC Factual Report is a factually accurate representation of the information collected during the on-scene investigation, to the extent of their best knowledge and contribution in this investigation.

//s// Date 11/3/2021
Ryan J. Frigo, NTSB

//s// Date 11/3/2021
John Manutes, NTSB

N/A Date N/A
Issac McKeithen, FRA

//s// Date 11/3/2021
Thad Laferriere, CPUC

//s// Date 11/3/2021
Ryan Ringleman, BNSF

//s// Date 11/3/2021
Louie Costa, SMART/UTU

//s// Date 11/3/2021
Brian Fransen, BLET

Appendix A:

GCOR Operating Rule 6.5 Shoving Movements

Equipment must not be shoved until the engineer and the employee protecting the movement have completed a job briefing concerning how protection will be provided. Employee must be in position, provide visual protection of the equipment being shoved and must not engage in unrelated tasks while providing protection.

Equipment must not be shoved until it is visually determined that:

- Portion of track to be used is clear of equipment or conflicting movements.
- The track will remain clear to the location where movement will be stopped.
- Switches and derails are properly lined.


Employees may be relieved from providing visual protection when:

- Local instructions specify tracks involved and how shoving movement will be protected, such as shove light or monitored cameras.
- A track has been pulled and an equivalent amount or less of cars or equipment will be immediately shoved back into that track and that track has remained clear to the location where the movement will be stopped.
- Immediately before shoving, a movement is made on the adjacent track providing the employee the ability to visually determine the track to be shoved is clear and route is properly lined.
- Authority on main track or controlled siding allows for movement in direction of shove, provided route is properly lined, road crossings will not be fouled and movement at restricted speed is not required.

Or


- Making back up movements in accordance with Rule 6.6 (Back Up Movements). Shoving movements over road crossings must be made in accordance with Rule 6.32.1 (Providing Warning Over Road Crossings).

Appendix B:



Share Knowledge ~ Save a Life

ZERO FATALITIES



SOFA ALERT

PLEASE POST IMMEDIATELY

August 13, 2020: Crossett, AR – An employee protecting a shove movement into a customer warehouse was fatally injured after encountering a close clearance situation and contacting a loading dock.

October 11, 2020: Richmond, VA – An employee protecting a shove movement into a track was fatally injured after encountering a close clearance situation and contacting a box car on an adjacent track.

November 11, 2020: Tuscola, IL – An employee protecting a shove movement into a customer siding was fatally injured after encountering a close clearance situation with a fence and was struck by the equipment.

Take Away

While these recent cases have not yet been analyzed, the SOFA Working Group is concerned by the 159 injuries that occurred this year through August 31, 2020 and reminds all employees to remain vigilant during switching operations by not only protecting the shove movement, but also protecting themselves by avoiding close or no clearances hazards. Last, but not least, remember to always hold a job briefing whenever the job or situation changes.

Most Common Findings in Switching Operations Fatalities

Close / No Clearance	Inexperienced Employee	Industry Hazard	Inadequate Job Briefing	Struck by Mainline Train
25%	22%	21%	20%	17%

As a cross-industry collaboration for over 20 years, the SOFA Working Group has identified the Possible Contributing Factors for more than 210 switching operations fatalities since 1992. The SOFA Working Group reports its finding and emerging data trends with the goal of zero fatalities in the railroad industry.




SOFA Lifesavers

Share Knowledge ~ Save a Life ~ Zero Fatalities

As a cross-industry collaboration for over 20 years, the SOFA Working Group has identified the Possible Contributing Factors for more than 210 switching operations fatalities since 1992. The SOFA Working Group reports its findings and emerging data trends with the goal of zero fatalities in the railroad industry.

Why Avoid Close / No Clearances?

1 in 4 switching operations fatalities due to a close or no clearance 

Case Example: A two-person RCL crew shoved five empty cars into a snow-covered industry track. Ice build-up on the track caused the lead car of the movement to derail. The RCL operator, riding the lead car and controlling the move, was crushed against the side of an industry building and fatally injured. **Take Away:** Before starting a move, check for obstructions that may prevent clearance for a crew member riding a car, and discuss the hazard during the job briefing.

What?

A close or no clearance is a permanent or temporary safety hazard involving insufficient or no space for an employee to take evasive action to avoid being struck if passing or being passed by an object, structure, or equipment.

When?

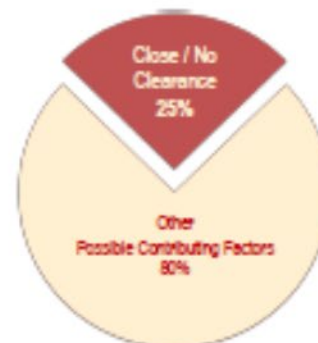
Close or no clearances can occur due to a fixed structure that remains in the same location day to day, such as a building, or when a movable object, such as a stack of cross ties, passes by an employee or an employee passes.

- ✓ Eliminate close/no clearances, re-engineer where feasible, and/or report as required.
- ✓ Improve signage to be instructional, such as "Stop and Dismount."
- ✓ Mark all permanent close/no clearances with highly visible signs.
- ✓ Prepare employees to identify & avoid close/no clearances.

How?

So employees know when to walk, or when and where to ride, establish "defensive switching" standards on how to handle close/no clearance situations, including the following:

- Look for hazards. Encourage inspection of the work site before acting.
- Ride the side away from hazards.
- Plan for the worst-case scenario, such as a derailment, and prepare an escape strategy.
- Maintain focus and avoid distractions, such as holding unnecessary conversations, doing paperwork, or using cell phones.
- Expand job briefings to emphasize issues such as:
 - Dangers of equipment left fouling.
 - Warnings to other crews when placing oversized cars on tracks adjacent to their work.
 - Location & potential for close/no clearances.



Most Common Findings in Switching Operations Fatalities



Appendix C:


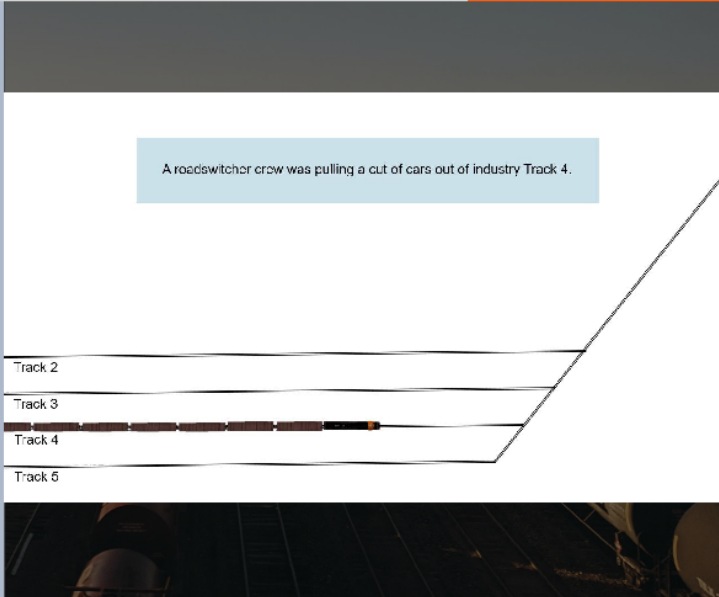
Training Slides

Shoving Case Study #2

GCOR 6.5

- Roadswitcher crew was pulling a cut of cars out of industry Track 4.
- Track 4 was equipped with clearance markers.
- Brakeman cut away 3 cars, planning to shove them into Track 3 while leaving the rest of the cut in the foul in Track 4.
- Conductor reversed the track 4 switch instead of the track 3 switch, initiated movement, and began to verify car numbers in another track to be pulled as part of their next move.
- Crew began shoving into Track 5, colliding with the standing cut left in the foul on Track 4.

A roadswitcher crew was pulling a cut of cars out of industry Track 4.



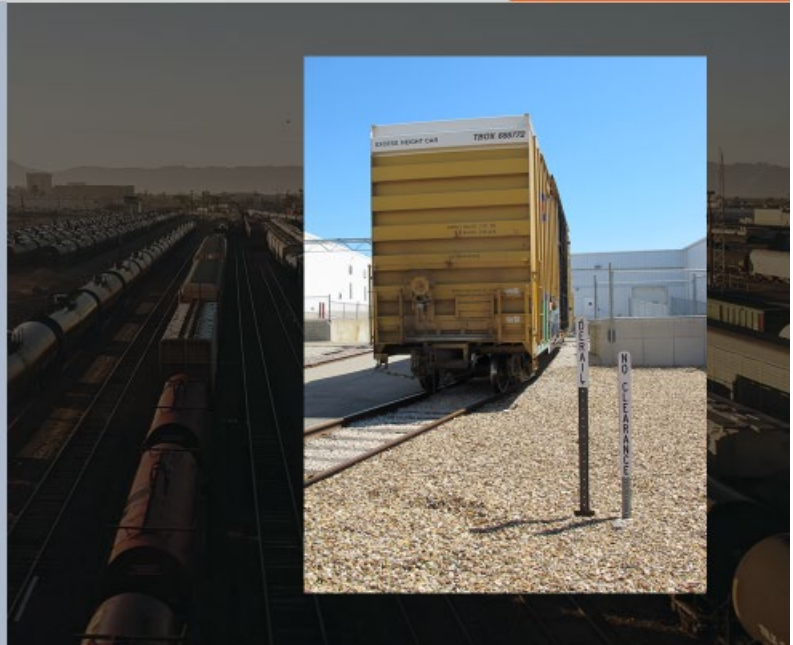
Shoving Case Study #2 Chat

Road-Switcher crew was pulling a cut of cars out of industry Track 4. Track 4 was equipped with clearance markers. Brakeman cut away 8 cars, planning to shove them into Track 3 while leaving the rest of the cut in the foul in Track 4. Foreman reversed the wrong switch, initiated movement, and began to verify car numbers in another track to be pulled as part of their next move. Crew began shoving into Track 5, colliding with the standing cut left in the foul on Track 4.

Riding Equipment Case Study

S-13.15

- Yard job was switching cars on the north end of the yard.
- Foreman and engineer had pulled 4 cars to the north out of Track 111 and were setting the south car into Track 113.
- Foreman operated the switch to get into Track 113, mounted the car, and gave instructions to make a shove move into the track.
- During the move, foreman radioed that he had fallen from the car and needed help.
- Investigation revealed that a shifted load in the north car in Track 114 pushed the car door out reducing clearance between Tracks 113 and 114, and knocked the foreman off the car.
- Tracks 113 and 114 were identified as close clearance in the timetable.



Riding Equipment Case Study

- Yard job was switching cars on the north end of the yard.
- Foreman and engineer had pulled 4 cars to the north out of Track 111 and were setting the south car into Track 113.
- Foreman operated the switch to get into Track 113, mounted the car, and gave instructions to make a shove move into the track.
- During the move, foreman radioed that he had fallen from the car and needed help.
- Investigation revealed that a shifted load in the north car in Track 114 pushed the car door out reducing clearance between Tracks 113 and 114, and knocked the foreman off the car.
- Tracks 113 and 114 were identified as close clearance in the timetable.

No Clearance and Close Track Center Restrictions

Employees must not ride or knowingly allow others to ride the no clearance side of equipment at the location where no clearance exists, under any of the following conditions:

A	<ul style="list-style-type: none"> • Between a structure and a moving car or engine. • Through gates or doorways. (Gates or doors must be secured in the open position).
B	<ul style="list-style-type: none"> • Into, out-of or within enclosed buildings. (Employees must precede the movement, if safe to do so, before entering enclosed buildings. Movements must only be made on that employee's signal within a building). • When it cannot be visually determined that equipment on an adjacent track is in the clear or behind the clearance point.
C	<ul style="list-style-type: none"> • On industry tracks at locations where signs may be placed, advising of no clearance. • At locations that have been identified by timetable or special instructions as having a no clearance condition.
D	<ul style="list-style-type: none"> • At locations that have been identified by timetable or special instructions as having close track centers unless that portion of adjacent track is known to be clear.

- Crew on a local cut power away from their train on the main track at the Birdsong Power Plant to pull a car out of the industry's track before spotting their train in the facility.
- After pulling the locomotive consist west past the switch into the facility, conductor operated the electric lock switch, lined it for movement and removed the derail into the facility.
- Conductor told engineer that he was protecting from the ground and instructed him to back up 8 cars.
- Engineer acknowledged who and how protection was provided and distance to be traveled and started movement.
- Locomotive consist had traveled approximately 154 feet when conductor instructed engineer to stop because the lead locomotive struck the side of the lead car of their train that had been cut off and left on the main.



^ Poll 8:Equipment in the Foul Case Study

1 question

No

Edit

Delete

1. How should this conductor have determined where to uncouple from the cars on the main track? Select all that apply. (Multiple Choice)

Answer 1: Stand outside the rail of adjacent track and extend an arm towards the equipment. When unable to touch the equipment, leave equipment at least an additional 50 feet into the track to ensure equipment is beyond the clearance point.

Answer 2: Reference the clearance point markers if available

Answer 3: At a location 50 feet from the switch

Instructor Talking Points:

GCOR definition -

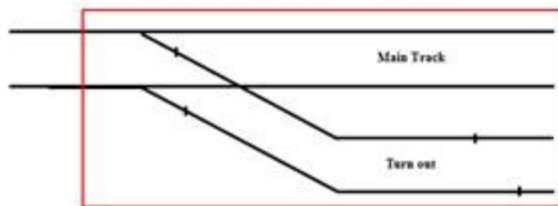
Clearance Point

The location closest to a switch where it is safe for equipment, and a person riding the side of equipment unless prohibited, to pass equipment on an adjacent track.

Fouling examples, including circuit fouling -

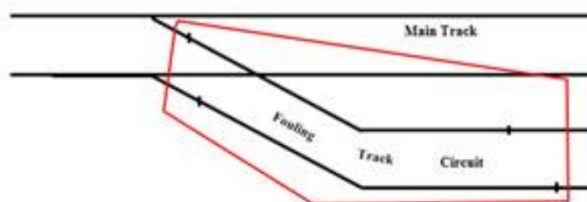
What are Foulings? – Fouling Section

The section of track between the switch points and the fouling point in the turnout.



What are Foulings? - Fouling Circuit

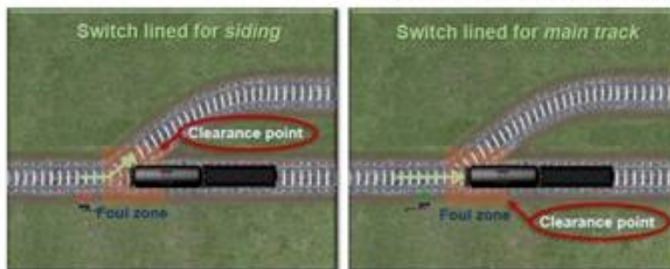
Circuit from the turn out joints to the effective joint in the turnout side.



Clearance points examples –

These examples show standing equipment left on the main track, fouling a siding switch. To avoid damage or injury, how must the switch be lined?

Equipment may be left on a main track, fouling a siding switch, when the switch is lined for the main track.



Appendix D:

NTSB Regulatory Interpretation Request Operating Practices Response

On April 1, 2021, the NTSB posed the following two similar questions:

“NTSB is trying to determine if the positioning and location of the rear DP locomotives constituted a violation of 49 CFR Section 218.101 or any other regulation relating to “out to foul”.

At this point, was the rear portion of the train in violation of Federal regulations found in Part 218 Subpart F, or any of the associated guidance in the FRA Compliance Manual?”

Since both questions are similar, one response to both is provided.

The (DPU) rear end of the train, located on the lead track, was in the foul of track 6802. However, it was not in violation of 218.101 due to the position of the track 6802 switch. The 6802-track switch was lined for the lead in compliance with the following 218.101(b)(3) rule:

§218.101 Leaving rolling and on-track maintenance-of-way equipment in the clear.

(b) Rolling and on-track maintenance-of-way equipment shall not be left where it will foul a connecting track unless:

(3) The equipment is standing on a yard switching lead track, and the yard track switch that the equipment is fouling is lined for the yard switching lead track on which the equipment is standing

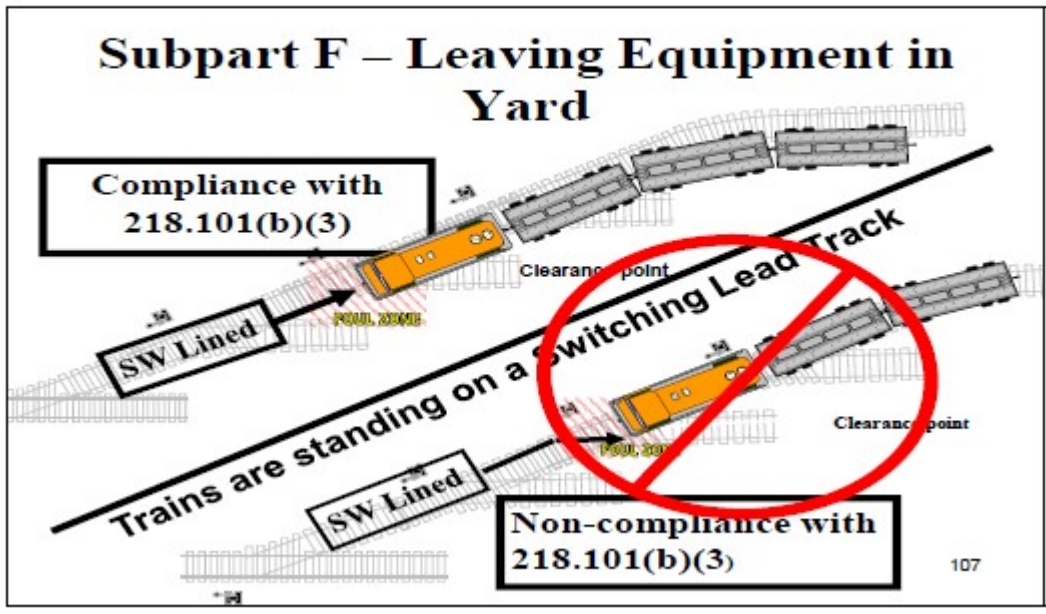
Therefore, since the track 6802 switch was lined for the lead, there is no fouling violation and is in compliance with the 218.101(b)(3) exception.

The BNSF adopted operating rule states in part:

Equipment may be left on a:

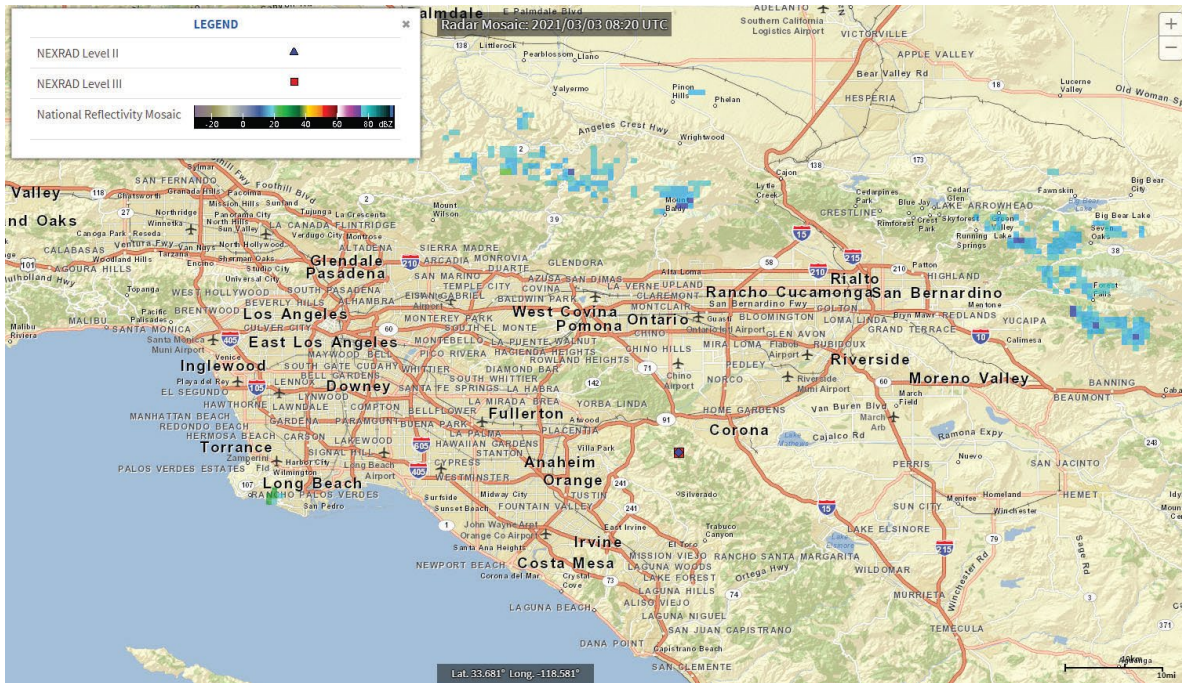
- *Yard switching lead, fouling a yard track switch, when the switch is lined for the yard switching lead.*

The following Operating Practices Compliance Manual diagram depicts 218.101(b)(3):

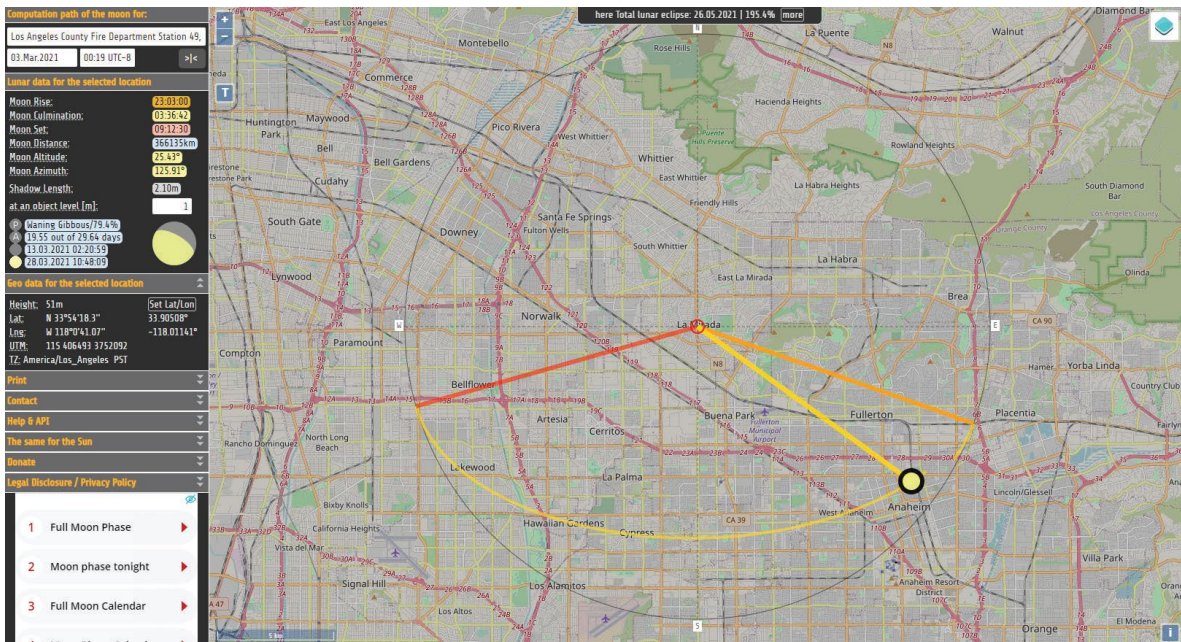


The above diagram closely reflects the La Mirada accident scenario.

Appendix E:



0820 UTC/0020 PST - Weather radar data indicating no precipitation for LA basin.



0819 UTC/0019 PST moon location and phase for La Mirada, CA

END OF FACTUAL REPORT