

**BROTHERHOOD OF LOCOMOTIVE ENGINEERS
AND TRAINMEN**

*A DIVISION OF THE RAIL CONFERENCE INTERNATIONAL BROTHERHOOD OF
TEAMSTERS*

SAFETY TASK FORCE

INDEPENDENCE, OHIO

BEFORE THE NATIONAL TRANSPORTATION SAFETY BOARD

NTSB Accident Number: RR21FR008

Class: REGIONAL March 3, 2021

**Proposed findings, probable cause, and safety recommendations in connection
with the switching fatality on Burlington Northern Santa Fe Railway Company
("BNSF") property at Buena Park Yard, in La Mirada, California.**

Stephen J. Bruno, BLET-Safety Task Force, National Chairman

Brian Fransen, BLET-Safety Task Force, Party Spokesman

FINAL SUBMISSION

The Brotherhood of Locomotive Engineers and Trainmen (“BLET”), a division of the Rail Conference of the International Brotherhood of Teamsters (“IBT”), was assigned party status by the Board in the above-referenced investigation. BLET respectfully submits these proposed, findings, probable cause, and safety recommendations to the Board for consideration.

Accident Synopsis:

On March 3, 2021, at approximately 12:19 a.m. Pacific Standard Time (“PST”),¹ a BNSF Conductor was killed while riding the end of a boxcar when it struck the side of a standing locomotive. The accident occurred in the Buena Park Yard in La Mirada, CA. The Conductor was working as a crew member on a westbound BNSF mixed freight train (H-BARLAC1-02A).

The H-BARLAC1-02A had forty-eight (48) cars that were scheduled to be delivered to Buena Park Yard before continuing to the train’s destination in Hobart Yard, Commerce City, CA. At approximately 12:08 a.m. the H-BARLAC1-02A arrived in Buena Park Yard. After arriving, the crew pulled toward the west end of track No. 6804 where the Conductor and Familiarizing Conductor dismounted. The Locomotive Engineer then continued to pull westward to a stopping point, as determined by the ground crew using portable radio commands, allowing the Conductor to separate the first forty-eight (48) cars from the train. The crew’s plan from this point was to fit as many cars as possible in track No. 6802, and then place the balance on track No. 6801.

The accident occurred while the train was shoving eastward into track No. 6802. Prior to the accident, the train was operating between seven (7) and five (5) miles per hour (“MPH”) with a decreasing speed. There was standing equipment (the rear segment of their inbound train) on the adjacent switching lead track (track No. 6804) for the final portion of this movement. The Conductor was pinned between the southeast corner of the eastward-most car involved with the shoving movement (“A” end of the railcar), and the stationary distributed power locomotives,² on the switching lead.

¹ All times throughout report will be Pacific Standard Time (“PST”).

² “Distributed power” is a term referring to the physical distribution of locomotives at intermediate points throughout

According to local weather reports from the Fullerton, CA Municipal Airport, at the time of the accident the weather was clear with a temperature of 48° F. Except for the Conductors' lanterns or flashlights the railroad provided, there was no artificial lighting at the location of the accident.



Figure 1- View of accident scene. Photo was taken post-accident. Car TBOX 642811 has been moved to the west to facilitate emergency response *(Photo courtesy of NTSB)*

Accident Narrative:

Train Information:

The H-BARLAC1-02A originated in Barstow, CA (milepost “MP” 2.7) and was destined for Hobart Yard (MP 145.1) in Commerce City, CA. The train consisted of five (5) locomotives, with the BNSF 8156 as the controlling locomotive. Three (3) locomotives were on the head end (front) of the train, and two (2) locomotives were on the rear of the train as distributed power locomotives. The train had seventy-three (73) loaded freight cars and eight (8) empty cars for a total of eighty-one (81) cars, weighing 9,295 tons, and was 5,165 feet in length.

the train. The distributed locomotives are remotely controlled from the controlling locomotive.

Method of Operation:

The Buena Park Yard (MP 160.3) is a part of the San Bernadino Subdivision on the California Division of BNSF's transportation network.³ Centralized Traffic Control ("CTC")⁴ is in effect on the San Bernadino Subdivision and trains enter the Buenos Park Yard upon signal indication. The maximum authorized speed ("MAS") in Buena Park Yard is ten (10) MPH. Additionally, all moves made within Buena Park Yard are made at restricted speed.⁵

BNSF Rules and/or Documents for TY&E Employees:⁶

Below is a complete list of the documents governing TY & E employees provided by BNSF Railway for this accident investigation:

- General Code of Operating Rules ("GCOR") 8th Edition, *effective April 1, 2020*
- BNSF California Division Timetable No.4, *effective February 27, 2019*
- BNSF System Special Instructions No.1, *effective April 1, 2020*
- BNSF Air Brake and Train Handling Rules No.7, *effective February 1, 2018*
- General Track Bulletins for the H-BARLAC1-02A

Movements of H-BARLAC1-02A:

The train crew of H-BARLAC1-02A went on duty on March 2, 2021, at 5:00 p.m. in Barstow, California. Prior to the start of their tour of duty, the Locomotive Engineer and the Conductor were off duty for fifteen (15) hours and thirty (30) minutes. The Familiarizing Conductor was off duty for eleven (11) hours and thirty (30) minutes. The record does not establish how much sleep each crew member had before arriving at work nor how much time they were awake prior to reporting for duty.

³ See Appendix A at the end of this report for the relevant portions of the BNSF Timetable.

⁴ "Centralized Traffic Control" is a signaling system that uses block signal systems to authorize train movements.

⁵ "Restricted speed" refers to a speed that allows stopping within half the range of vision short of: train, engine, rail-road car, men or equipment fouling the track, stop signal or derail or switch lined improperly.

⁶ Train, Yard and Engine service employees.

Upon arriving at their on-duty location, the crew had a job safety briefing and received all relevant paperwork and train information. The crew boarded their train in the Departure Yard at Barstow Yard and performed all the required air brake tests, then waited approximately two (2) hours for permission from the BNSF Barstow Yardmaster to depart due to a train ahead that was being yarded. Upon receiving authorization to depart, train H-BARLAC1-02A headed westbound.

The train arrived at CP Buena Park (MP 160.3) at approximately 12:08 a.m. on March 3, 2021. The train had forty-eight (48) cars which were to be left (“set out”) in Buena Park Yard before continuing westbound to Commerce City, CA. Upon arrival, H-BARLAC1-02A found all switches and derails were lined for their movement into the Buena Park Yard facility. The train entered the yard through track No. 6804 and stopped with a portion of their train on tracks 6802, 6803 and 6804. The crew was apparently unaware that the distributed power locomotives were still on the lead and in the foul of track 6802.

After performing a job safety briefing, the crew determined that to complete the set out of the forty-eight (48) rail cars, the Conductor and Familiarizing Conductor would put as many railcars as possible into track No. 6803, and the remaining railcars into track No. 6802. The Conductor and Familiarizing Conductor dismounted the equipment at the westbound clearance point for track No. 6804 and instructed the Locomotive Engineer to pull the train ahead. After counting the forty-eight (48) cars that would be set out, the Conductor instructed the Locomotive Engineer via radio to stop the train. At this location, the Conductor separated the leading three (3) locomotives and forty-eight (48) cars from the train. The crew then pulled further westward to clear the switch granting access to track No. 6802.

After lining the switch, the Conductor mounted the southeast corner of the lead railcar, and the Familiarizing Conductor mounted the northeast corner to ride the railcars and start the set off 48 cars on tracks 6802 and 6801.⁷ The Conductor gave directions to the Locomotive Engineer via radio that the switch was lined for track No. 6802 and to begin shoving for twenty-five (25) car lengths.⁸

⁷ See Appendix B at the end of this report for relevant rules related to shoving movements

⁸ In railroad terminology, car lengths are normally expressed in 50-foot increments (e.g., 1 car length = 50 feet).

The Locomotive Engineer began shoving the draft of cars in an eastward direction and reached a maximum speed of 8 MPH. While shoving eastward, the Locomotive Engineer repeated regular radio transmissions regarding additional car lengths as stated by the Conductor. Over an approximate timespan of two and one-half minutes, the Locomotive Engineer was given additional car counts which he repeated of; twenty (20), fifteen (15), twelve (12), nine (9) and seven (7). From that time, over the subsequent fourteen (14) seconds, the Conductor provided no further car counts but instructed the Locomotive Engineer to stop three (3) times. The first stop instruction was issued six (6) seconds after providing a clear distance of seven (7) car lengths. The Locomotive Engineer began braking upon hearing the Conductor's first stop instruction. Upon hearing additional more urgent instructions, he immediately applied all train and engine brakes.

Per the post-accident interview with the Familiarizing Conductor, the stop instructions were called when it became apparent the railcar they were riding, was approaching the train's rear distributed power locomotives at the rear portion of their train which they had separated from and left on tracks 6804 and 6803 and the yard lead. (*see Figure 2*). The distributed power locomotives were in the foul at the east end of the yard. The railcar that the Conductor and Familiarizing Conductor were riding impacted the distributed power locomotives, pinning and fatally injuring the Conductor, who was riding on the ladder on the southeast side of the lead railcar.

Once the movement ceased, the Locomotive Engineer attempted to contact the Conductor and Familiarizing Conductor by radio, to which the Familiarizing Conductor responded with an "emergency" radio announcement and stated that the Conductor "was pinned". The Locomotive Engineer then contacted the BNSF Train Dispatcher by radio and requested that Emergency Medical Services ("EMS") be called.

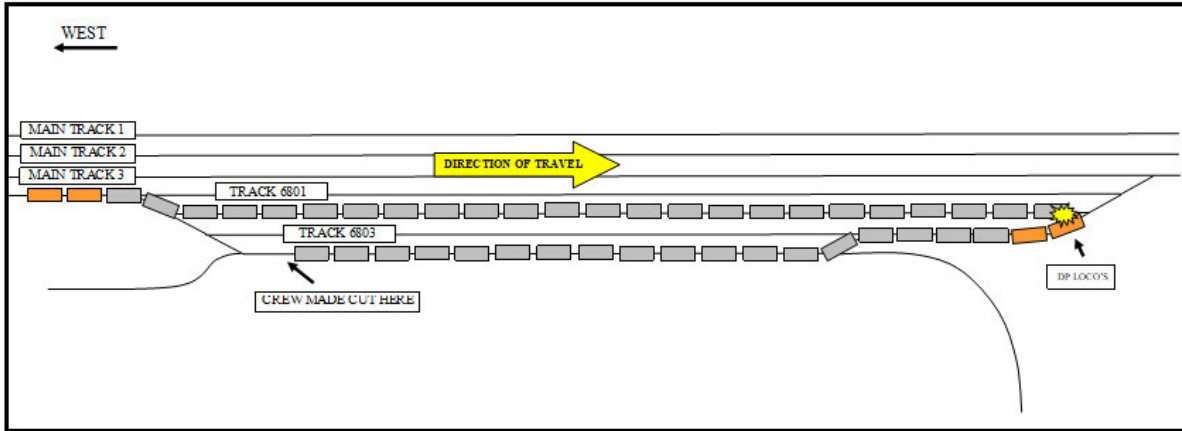


Figure 2- BNSF Buena Park Yard schematic of accident (Courtesy of BLET)

Train Crew Radio Communications:

The following radio transcript was developed by working group members at the scene of the accident:

RADIO COMMUNICATIONS SUMMARY

| TIME STAMP (PST) | COMMUNICATION |
|--------------------------------|--|
| 0014:31 | Conductor notifies Engineer that both crew members will be protecting the shove while riding a rail car and then initiates 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 makes 1 st request to stop |
| 0019:17 | 4 seconds later, Conductor makes 2 nd request to stop |
| 0019:20 | 2 seconds later, Conductor makes last request to stop |

Crew Information:

Conductor:

The fatally injured Conductor was a 46-year-old male who was hired by BNSF in 2013 as a Conductor. He was a regularly assigned Conductor on the freight pool operating between Los Angeles, CA and Barstow, CA and was determined to be fit for duty.⁹

Locomotive Engineer:

The Locomotive Engineer was a 45-year-old male who was hired by BNSF in 1998 as a Conductor. He was promoted to Locomotive Engineer in 2004. He was a regularly assigned Locomotive Engineer on the freight pool operating between Los Angeles, CA and Barstow, CA and was determined to be fit for duty.

Familiarizing Conductor:

The Familiarizing Conductor was a 50-year-old male who was hired by BNSF in 2018 as a Conductor. From February 2020 until July 2020, he was placed in furlough status. After recall in July 2020, the Familiarizing Conductor worked in Phoenix, Arizona from July 2020 until one week prior to the incident under review. The Familiarizing Conductor was determined to be fit for duty.

Post-Accident Toxicological Testing:

The Locomotive Engineer, Conductor and Familiarizing Conductor's toxicological specimens were sent for post-accident analysis. Post-accident testing for all three employees was negative for alcohol and drugs.

⁹ According to medical reports, there was an occupational medical report of the fatally injured Conductor having a positive Covid test with a quarantine/isolation period between 2/16/21 to 2/28/21. It is unclear what role, if any, the residual effects of the Conductor's Covid illness may have had on his ability to concentrate and focus on his duties.

Switching Operations Fatality Working Group:

The Switching Operations Fatality Analysis (“SOFA”) Working Group is an established, voluntary, non-regulatory, workplace safety partnership sponsored by the Federal Railroad Administration (“FRA”). The SOFA Working Group issues regular Safety Alerts to help achieve its goal of eliminating switching injuries and fatalities. FRA formed the group in February 1998 to review switching operations accident reports and to develop recommendations for reducing fatalities and injuries.

On November 19, 2020, following an accident in Tuscola, IL, the SOFA Working Group issued a safety alert that focused on the fact that 1 in 4 switching fatalities occur in close/no clearance¹⁰ situations and included a recommendation for employees to “Plan for the worst-case scenario and... prepare an escape strategy.”¹¹

The Buena Park Yard tracks are not designated as close/no clearance. At the start of the shoving movement, neither track immediately adjacent to the crew contained standing equipment. However, a temporary close/no clearance situation was created by the rear of the train the crew was riding and the locomotives left on the east end of track No. 6802.

BNSF training for new hire Conductors includes several modules that cover close clearance as outlined within the rules and permanent close/no clearance points identified in their special instructions. Training is covered in both a classroom and field environment.

Probable Cause

The Brotherhood of Locomotive Engineers and Trainmen concludes that the probable cause of the March 3, 2021 fatality at Buena Park Yard in La Mirada, CA was the Conductor’s apparent loss of situational awareness. The fatally injured Conductor apparently misjudged his train’s stopping

¹⁰ “Close/no clearance” refers to a permanent or temporary safety hazard involving insufficient space 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. A close/no clearance situation was created by the rear of the train the crew was riding and the locomotives left on the eastward end of track No. 6802.

¹¹ See Appendix C at the end of this report.

distance and the fouling point between track 6802 and the distributed locomotive engines. He did not execute his escape strategy. There were several contributing factors to this accident.

1. The Buena Park Yard facility contains no fixed lighting. Thus, the Conductor's visibility was reduced. The fouling point would have been much harder to determine, because he would have been relying solely upon a handheld lantern or flashlight (*see Figure 3*).



Figure 3 – Side by side comparison of view from the railcar that was being ridden by the Familiarizing Conductor and the fatally injured Conductor (TBOX 642811). Picture on left shows view with no lighting as probably seen by Conductor. Picture on right shows perspective when ambient lighting is provided. (*Photos courtesy of NTSB*)

2. The Buena Park Yard facility had no illuminated fouling point indicators within the body of the tracks within the yard.¹²
3. The positions of the Conductor and Familiarizing Conductor placed them on opposite sides of the leading end of the movement. Though permitting each an “unobstructed” view of the track ahead, the crewmembers’ relative positions denied the Familiarizing Conductor the ability to audibly determine the accuracy of car counts being given and to observe the physical demeanor of the Conductor, who was directing the move.

¹² Fouling point indicators are not a required appliance.

Proposed Recommendations

To BNSF Railway:

1. Enhance the training program to document that Conductor Trainees are trained on every aspect of their assignment and are aware of restricted safety tracks that could cause injury prior to qualifying.
2. Enhance the training program to include extensive training on dismounting moving equipment in emergency situations.
3. Install high visibility clearance markers (*see Figure 4*) in all areas where regular switching operations occur throughout all times of day.
4. Identify and implement changes to improve yard lighting in all areas where regular switching operations occur.

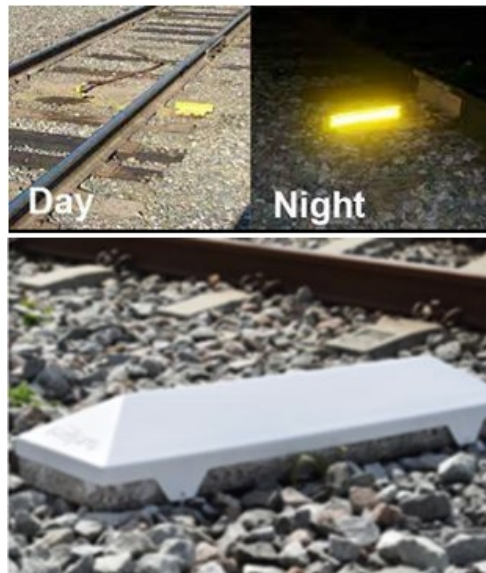


Figure 4 – *Examples of illuminated clearance markers*

To the Federal Railroad Administration (“FRA”):

1. Mandate that railroads implement a training program to include extensive training on dismounting moving equipment in emergency situations.
2. Implement regulations for high visibility clearance markers (*see Figure 4*) in all areas where regular switching operations occur throughout all times of day.
3. Mandate a process that would require managers to review trainees for proper knowledge of close/no clearances, bulletin and timetable instructions and for proper demonstration of the application of such rules.
4. Mandate changes to enhance yard lighting in all areas where regular switching operations occur through all times of day.

To NTSB and FRA:

1. Engage an expert to: determine what role, if any, the residual effects of the Conductor’s COVID illness may have had on his ability to concentrate and focus on his duties and what measures, if any, the industry should take to evaluate an employee’s fitness for duty upon returning to duty from a COVID illness.

CERTIFICATE OF SERVICE

I certify that on December 14, 2021 I have electronically served upon Mr. Ryan Frigo (ryan.frigo@ntsb.gov), Investigator in Charge, National Transportation Safety Board, a complete and accurate copy of these proposed findings regarding the March 3, 2021, switching fatality at BNSF Railway's Buena Park Yard in La Mirada, CA (NTSB Docket No. RRD21FR008). An electronic copy of same was also forwarded to the individuals listed below in this certificate of service, as required by 49 CFR § 845.27 (Proposed Findings)

Mr. Ryan Frigo
Investigator-in-Charge, RRD21FR008
National Transportation Safety Board
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Washington, DC 20594
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Ryan Ringelman, BNSF
General Director of System Safety
Email: ryan.ringelman@bnsf.com

Louie Costa, SMART-TD
Investigator
Email: cslb@ca-smart-td.org

Sincerely yours,



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National Secretary-Treasurer
National Chairman, Safety Task Force
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Independence, OH 44131*

Appendix A

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| WESTWARD | Length of Siding (Feet) | Station Nos. | Mile Post | San Bernardino Subdivision MAIN LINE STATIONS | Rule 4.3 | Type of Oper. | Line Seg. | Miles to Next Stn. | EASTWARD |
|----------|-------------------------|--------------|-----------|--|----------------|---------------|-----------|--------------------|----------|
| | | | | Adj. Sub: <u>Cajon</u> Subdivision Boundary: San Bernardino MP 0.0 / Cajon MP 81.3 | | | | | |
| | | 19100 | 0.3 | SAN BERNARDINO Adj. RR: SCRRA, MP 0.1 | BCJM PTX(2) | | | 0.8 | |
| | | | 1.1 | EAST B YARD (MT1 & MT2) | X(2) | CTC 3 MT | | 1.1 | |
| | | 19140 | 2.2 | RANA | X(2) | | | 0.7 | |
| | | | 2.9 | GONZALES (MT1 & MT2) Adj. RR: UP, MP 2.9 (MT1) | JX | | | 0.3 | |
| | | 25045 | 3.2 | COLTON (UP RRX) | M | CTC 2 MT | | 1.1 | |
| | | | 4.3 | WEST COLTON Adj. RR: UP, MP 4.3 | JX(2) | | | 2.0 | |
| | | 25065 | 6.3 | HIGHGROVE Adj. RR: SCRRA, MP 6.5 | JX | | | 0.8 | |
| | | | 7.1 | CP 704 (MT3) Adj. RR: SCRRA, MP 7.1 | J | CTC 3 MT | | 2.8 | |
| | | 25200 | 9.9 | RIVERSIDE (MT3) | | | 7602 | 0.7 | |
| | | | 9.9 | TENTH STREET (MT1) | | | | 0.7 | |
| | | | 10.6 | WEST RIVERSIDE Adj. RR: UP, MP 10.6 | JX(2) | | | 4.5 | |
| | | | 15.1 | ARLINGTON | X(2) | | | 6.3 | |
| | | 25250 | 21.4 | MAY | X(2) | CTC 2 MT | | 0.8 | |
| | | 9,618 25255 | 23.0 | 22.4 24.5 | PORPHYRY (MT2) | | | 6.4 | |
| | | 25295 | 29.4 | PRADO DAM | X(2) | CTC 3 MT | | 6.4 | |
| | | 25270 | 35.8 | ESPERANZA | X(2) | | | 4.8 | |
| | | 25274 | 40.6 | ATWOOD Adj. Sub: <u>San Diego</u> , MP 49.8 | JX(2) | CTC 2 MT | | 5.0 | |
| | | 23200 | 45.5 | FULLERTON JCT Adj. Sub: <u>San Diego</u> , MP 155.9 | BCJP X(2) | | | 2.7 | |
| | | 23160 | 163.0 | BASTA (MT2 & MT3) | X(2) | | | 0.8 | |
| | | 23148 | 160.3 | BUENA PARK | X(2) | | | 0.8 | |
| | | | 158.7 | VALLEY VIEW (MT3) | X | | | 1.3 | |
| | | 3,432 | 156.0 | 155.0 155.9 | NORWALK (MT3) | | | 1.3 | |
| | | | 154.7 | SANTA FE SPRINGS | X(2) | | | 1.8 | |
| | | 23120 | 152.9 | LOS NIETOS (UP RRX) | M | CTC 3 MT | | 1.0 | |
| | | 23110 | 151.9 | DT JCT (UP RRX) | M | | | 2.1 | |
| | | 23039 | 149.8 | BANDINI | X(2) | | | 1.4 | |
| | | | 148.4 | COMMERCE | X(2) | | 7600 | 1.1 | |
| | | | 147.3 | EASTERN AVE | X(2) | | | 1.3 | |
| | | | 146.0 | EAST HOBART | X(2) | | | 0.9 | |
| | | 23000 | 145.1 | HOBART | X(2) | | | 0.4 | |
| | | | 144.7 | WEST HOBART | X(2) | | | 0.2 | |
| | | | 144.5 | SAN PEDRO JCT Adj. RR: UP, MP 144.5 | CJM X(2) | CTC 4 MT | | 0.5 | |
| | | | 144.0 | SOTO Adj. RR: SCRRA, MP 144.5 | X(2) | | | 0.6 | |
| | | 23550 | 143.4 | HARBOR JCT (MT2) Adj. Sub: <u>Harbor</u> , MP 143.4 | J | CTC 2 MT | | 0.2 | |
| | | | 143.2 | CP WEST REDONDO | J | | | 67.9 | |
| | | | | Adj. Sub: <u>Alameda Corridor</u> Subdivision Boundary: San Bernardino MP 143.2 / Alameda Corridor MP 0.0 | | | | | |

Pacific Continental Time in effect on San Bernardino Subdivision

| Radio Call-In | |
|--|-------------------|
| Radio Channel 672 in service San Bernardino to West Riverside | |
| San Bernardino - 24(X) | Riverside - 25(X) |
| Radio Channel 636 in service West Riverside to West Redondo | |
| Casa Blanca - 26(X) | Corona - 30(X) |
| Pico Rivera - 32(X) | Fullerton - 31(X) |
| Hobart - 34(X) | |
| Radio Channel 632 in service at La Mirada Yard - 32(X) | |
| Radio Channel 672 in service at La Mirada Yard (Secondary Channel) - no call-in | |
| Radio Channel 632 and 672 in service at Hobart Yard | |
| Emergency - Call 911 | |
| Dispatcher X=0, Mechanical Desk X=2, Customer Support X=3, Railroad Police X=4, Detector Desk X=5, PTC Desk X=9 | |

| Mobile PBX Access | | | | |
|-------------------|---------------------------|---------------------|--------------------------------------|------------------------|
| Location | Preprogrammed PBX Channel | Connect Access Code | Dial Tone | Disconnect Access Code |
| Corona | P3 | * | 909-386-4661 or on net 8-386-4661 | # |
| Los Angeles | P | * | 323-307-5830 or on net 8-307-5830 | # |

Dispatcher Information
San Bernardino to, and including, West Riverside: 817-867-7014,
Fax 909-386-4294
West Riverside to CP West Redondo: 817-867-7015,
Fax 909-386-4245

1. Speed Regulations

See Item 1 of the System Special Instructions for additional speed restrictions.

1(A). Speed—Maximum

| | Psgs | | Frt | |
|---|---------------|----------------|---------------|----------------|
| | Under 100 TDR | 100 TDR & Over | Under 100 TDR | 100 TDR & Over |
| Main Track | | | | |
| MP 0.0 to MP 45.6 | 80 | 50 | 50 | 50 |
| MP 165.5 to MP 144.5 | 79 | 50 | 50 | 50 |
| MP 144.5 to MP 143.2, MT1, MT2 | 40 | 40 | 40 | 40 |
| MP 144.5 to MP 143.9, MT3, MT4 | 85 | 40 | 40 | 40 |
| Other Tracks where CTC is in Effect (GCOR/MWOR 10.0) | | | | |
| MP 0.9 to MP 1.0, East B Yard Lead | 10 | 10 | 10 | 10 |
| MP 1.9 to MP 2.0, B Yard Lead | 10 | 10 | 10 | 10 |
| MP 2.9 to MP 3.1, UP Connection | 15 | 15 | 15 | 15 |
| MP 4.2 to MP 4.4, Riverside Industrial track | 10 | 10 | 10 | 10 |
| MP 6.1 to MP 6.6, Metrolink connector | 10 | 10 | 10 | 10 |
| MP 9.9 to MP 10.2, South Station | 10 | 10 | 10 | 10 |
| MP 10.3 to MP 10.4, North Station | 10 | 10 | 10 | 10 |
| MP 158.8 to MP 158.6, West La Mirada Yard Lead | 10 | 10 | 10 | 10 |
| MP 148.5 to MP 148.3, Industry Lead | 10 | 10 | 10 | 10 |
| MP 147.2 to MP 147.1, Industry Lead | 10 | 10 | 10 | 10 |
| MP 146.0 to MP 145.9, Setout Lead | 10 | 10 | 10 | 10 |
| MP 144.7 to MP 144.6, Downey Lead | 10 | 10 | 10 | 10 |
| MP 144.5 to MP 144.3, Downey Lead | 10 | 10 | 10 | 10 |
| MP 144.5 to MP 144.5, East Leg Wye | 10 | 10 | 10 | 10 |

1(B). Speed—Permanent Restrictions

| | Psgs | Frt |
|--------------------|------|-----|
| MP 0.0 to MP 3.2 | 30 | 30 |
| MP 3.2 to MP 4.0 | 40 | 40 |
| MP 6.5 to MP 6.9 | 50 | 40 |
| MP 9.3 to MP 9.6 | 55 | — |
| MP 11.8 to MP 12.5 | 45 | 40 |
| MP 15.4 to MP 16.7 | 55 | — |

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| | Psg | Ft |
|-------------------------------|-----|----|
| MP 31.4 to MP 31.6 | 55 | — |
| MP 32.8 to MP 34.4 | 50 | — |
| MP 34.4 to MP 35.1 | 50 | 45 |
| MP 36.1 to MP 36.4, MT2 | 55 | — |
| MP 45.1 to MP 165.2, MT1, MT2 | 45 | 40 |
| MP 165.5 to MP 165.2, MT3 | 45 | 40 |
| MP 163.9 to MP 163.5 | 75 | — |
| MP 161.2 to MP 160.8 | 70 | — |
| MP 158.8 to MP 155.9 | 75 | — |
| MP 154.2 to MP 153.7 | 70 | — |
| MP 153.0 to MP 152.9 | 50 | 50 |
| MP 152.9 to MP 152.5 | 70 | — |
| MP 152.0 to MP 151.9 | 50 | 50 |
| MP 151.7 to MP 151.4 | 65 | — |
| MP 144.7 to MP 144.5 | 40 | 40 |
| MP 143.5 to MP 143.4 | 25 | 25 |

Key Trains

| Maximum speed within the following municipal area limits unless otherwise restricted: | Ft |
|---|----|
| MP 0.0 to MP 45.6 | 35 |
| MP 165.4 to MP 143.2 | 35 |

- 1(C). Speed—Sidings and Main Track Switches and Turnouts**
 Trains and engines must not exceed 10 MPH through turnouts unless otherwise indicated. Trains and engines using sidings must not exceed the siding turnout speed unless otherwise indicated.

| | Psg | Ft |
|--|-----|----|
| MP 0.3, San Bernardino, crossovers | 30 | 30 |
| MP 1.1, East B Yard, crossover, MT1 - Yard Lead | 15 | 15 |
| MP 1.1, East B Yard, crossover, MT1 - MT2 | 30 | 30 |
| MP 1.9, Rana, crossover, MT1 - B Yard Lead | 15 | 15 |
| MP 1.9, Rana, turnout, MT3 - GM Lead | 15 | 15 |
| MP 2.0, Rana, turnout, MT3 - Short Way | 30 | 30 |
| MP 2.2, Rana, crossovers | 30 | 30 |
| MP 2.9, Gonzales, crossover, MT1 - MT1 | 30 | 30 |
| MP 2.9, Gonzales, turnout to UPRR connection track | 15 | 15 |
| MP 4.2, West Colton, MT2 to Riverside Industrial | 30 | 30 |
| MP 4.2, West Colton, crossovers | 50 | 50 |
| MP 6.1, Highgrove, crossover | 50 | 50 |
| MP 6.1, Highgrove, MT1 - MT1 | 50 | 50 |
| MP 6.4, Highgrove, MT2 to Metrolink connector | 20 | 20 |
| MP 7.0, CP 704, MT3 turnout to Metrolink connector | 30 | 30 |
| MP 9.8, Riverside, MT3 to South Station | 30 | 30 |
| MP 9.8, Tenth Street, MT1 to North Station | 40 | 40 |
| MP 10.3, West Riverside, MT3 to South Station | 30 | 30 |
| MP 10.4, West Riverside, crossover, MT1 to North Station | 30 | 30 |
| MP 10.5, West Riverside, MT2 to MT3 | 40 | 40 |
| MP 10.6, West Riverside, crossovers | 40 | 40 |
| MP 10.6, West Riverside, MT1 to UPRR | 40 | 40 |
| MP 15.1, Arlington, crossovers | 50 | 50 |
| MP 21.4, May, crossovers, WWD, MT1 - MT2 | 50 | 45 |
| MP 21.4, May, crossovers, EWD, MT1 - MT2 | 50 | 50 |
| MP 23.0, Porphyry, siding turnouts | 15 | 15 |
| MP 29.4, Prado Dam, crossovers | 50 | 50 |
| MP 29.5, Prado Dam, MT1 - MT1 | 50 | 50 |
| MP 35.8, Esperanza, MT1 - MT1 | 50 | 50 |
| MP 35.9, Esperanza, crossovers | 50 | 50 |

| | | | |
|---|----|----|----|
| MP 36.0, Esperanza, MT1 to Storage Track | 15 | 15 | 15 |
| MP 40.5, Atwood, crossovers | 50 | 50 | 50 |
| MP 40.5, Atwood, MT2 to Metrolink | 25 | 25 | 25 |
| MP 45.4, Fullerton Jct, crossover, WWD, MT1 - MT2 | 50 | 40 | 40 |
| MP 45.4, Fullerton Jct, crossover, EWD, MT1 - MT2 | 50 | 50 | 50 |
| MP 165.4, Fullerton Jct, MT2 to Metrolink MT1 | 40 | 40 | 40 |
| MP 165.3, Fullerton Jct, crossover, WWD, MT1-MT2 | 50 | 40 | 40 |

| | Psg | Ft | |
|--|-----|----|----|
| MP 165.3, Fullerton Jct, crossover, EWD, MT1 - MT2 | 50 | 50 | 50 |
| MP 165.2, Fullerton Jct, crossover, MT2 to MT3 | 40 | 40 | 40 |
| MP 163.2, Basta, MT3 to Industry | 20 | 20 | 20 |
| MP 163.0, Basta, crossovers | 50 | 50 | 50 |
| MP 160.3, Buena Park, crossovers | 50 | 50 | 50 |
| MP 156.1, Norwalk, siding turnouts | 25 | 25 | 25 |
| MP 155.0, Santa Fe Springs, crossovers, WWD, MT1, MT2, MT3 | 50 | 50 | 50 |
| MP 155.0, Santa Fe Springs, crossovers, EWD, MT1, MT2, MT3 | 50 | 50 | 45 |
| MP 149.8, Bandini, crossovers, WWD, MT1, MT2, MT3 | 50 | 50 | 45 |
| MP 149.8, Bandini, crossovers, EWD, MT1, MT2, MT3 | 50 | 50 | 50 |
| MP 148.5, Commerce, crossovers, MT1, MT2, MT3 | 50 | 50 | 45 |
| MP 147.8, Eastern Ave, crossover, WWD, MT2- MT3 | 50 | 50 | 50 |
| MP 147.8, Eastern Ave, crossover, EWD, MT3 - MT2 | 50 | 50 | 45 |
| MP 147.3, Eastern Ave, crossovers, except at MP 147.6 | 40 | 40 | 40 |
| MP 147.2, Eastern Ave, crossover, MT1 - industry lead | 15 | 15 | 15 |
| MP 147.1, Eastern Ave, MT1 - setout track | 15 | 15 | 15 |
| MP 146.0, East Hobart, crossovers | 30 | 30 | 30 |
| MP 145.1, Hobart, crossovers, MT1, MT2, MT3 | 50 | 50 | 45 |
| MP 145.1, Hobart, MT1 - setout track | 15 | 15 | 15 |
| MP 144.8, West Hobart, MT3 - MT4 | 40 | 40 | 40 |
| MP 144.6, West Hobart, crossover, MT1 - MT2 | 15 | 10 | 10 |
| MP 144.5, San Pedro Jct, crossover MT1 - MT2 | 30 | 30 | 30 |
| MP 144.4, Soto, crossovers | 40 | 40 | 40 |
| MP 143.9, Soto, MT1 - Downey Lead | 25 | 25 | 25 |
| MP 143.4, Harbor Jct, MT2 - Harbor Sub | 15 | 15 | 15 |

(Westward trains departing San Bernardino at Rana (B Yard Lead) may increase their speed to 15 MPH once the head end has passed the signal at Rana.)

(Eastward trains departing Hobart may increase their speed to 15 MPH, once the head end has passed the signal at Eastern.)

- 1(D). Speed—Other**
 Trains and engines must not exceed 10 MPH through turnouts unless otherwise indicated. Trains and engines must not exceed 10 MPH on other than main track (GCOR/MWOR 6.2B) unless otherwise indicated.

| | | | |
|--|----|----|----|
| San Bernardino Diesel Service Tracks 130, 131, 132, 133, 134 | 5 | 5 | 5 |
| Industry Lead and setout track, Hobart to Commerce Diesel - lite engines when controlled from the engine nearest the direction of movement | 15 | 15 | 15 |
| San Pedro Jct, junction wye | 5 | 5 | 5 |

2. Bridge and Equipment Weight Restrictions

Maximum Gross Weight of Car
 San Bernardino to CP West Redondo.. 143 tons, Restriction B

Appendix B

6.5 Shoving Movements

Shoving cars or engines ahead of an engine must be performed by an employee visually observing the intended route while communicating instructions with the employee controlling the engine to ensure safe operation.

A GCOR qualified employee must protect the shove movement by:

- Visually observing the leading end of the movement to determine that switches and derails are properly lined, and the route is clear for the intended movement.
- Communicating instructions including a distance that specifies where the movement must be prepared to stop. (e.g., stop for misaligned switch, controlling speed for conditions, etc.)

Employees are encouraged to communicate additional information related to the shoving movement (e.g., close clearance conditions, stop signals, authority limits, etc.)

When communicating distances:

- Use 50 feet as a standard for one car length
- Provide instructions that allow for control of the movement (e.g., controlling speed for conditions, etc.)
- Use a number of car lengths that is no greater than the portion of track that has been determined to be clear, and represents where movement must stop for improperly lined switches/derails, on-track equipment, etc.

When communicating with a radio:

- The employee observing the leading end of the movement must inform the employee at the controls of the engine who is protecting the movement and how the protection will be provided (e.g., Conductor Smith on the ground, riding equipment, riding in vehicle, camera, etc.), and specify a distance.
- Direction will be described in relation to the front of the controlling locomotive (F stencil). Use the following terms:
 - "Ahead" to move forward
 - "Backup" to move backward
 - "Stop" to stop the movement

Do not use terms such as "Good For", "Shove", "Bring 'em this way", "That'll do", etc., in place of "Ahead", "Backup" or "Stop".

The following are required of the employee controlling the engine:

- Before beginning a shove movement, must know who is protecting the movement and how protection will be provided
- Before beginning a shove movement, must repeat by radio the instructions received from the employee providing protection.
- When moving, must verbally acknowledge radio instructions by repeating the distance communicated when more than four cars.
- Movement must be stopped within half of the distance specified unless additional instructions are received.

Employees involved in the shove movement must not engage in any activity unrelated to the shove. (e.g., unrelated communication, operating a switch not part of the intended route of the shove, etc.)

An employee is not required to be in position to observe the leading end of the movement when:

- Relieved by local instructions for tracks equipped with shove lights/cameras.
 - Relieved by special instructions specific to tracks involved.
 - During GCOR 6.6 Back Up Movements.
 - During pullout moves within an activated Remote Control Zone (RCZ).
- or
- Moving cars only the distance necessary (not exceeding 5 car lengths) to operate an uncoupling lever for the purpose of kicking cars. It must first be verified that the track is clear and switches and derails are lined for the movement.

When cars or engines are shoved on a main track or controlled siding in the direction authorized, movement must not exceed:

- 20 MPH for freight trains.
- 30 MPH for passenger trains.

When engaged in snow plow operations:

- One common authority may be used by both Maintenance of Way employees and the train crew when all employees are on the equipment.
- Maximum timetable speed applies unless a higher speed is authorized by the employee in charge.
- Employees are relieved from providing visual protection for snow plow being shoved.

Appendix C



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



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

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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.

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.

- ✓ 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.



Most Common Findings in Switching Operations Fatalities

