ANNUAL RAILROAD SAFETY REPORT

TO THE CALIFORNIA STATE LEGISLATURE

Pursuant to California Public Utilities Code Sections 916, 916.1, 916.2, and 916.3

NOVEMBER 30, 2020

FOR FISCAL YEAR 2019-2020

California Public Utilities Commission

Rail Safety Division

Railroad Operations and Safety Branch

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Annual Railroad Safety Activity Report Fiscal Year 2019-2020

Pursuant to California Public Utilities Code Sections 916, 916.1, 916.2, and 916.3

The California Public Utilities Commission (CPUC or Commission) is the California regulatory agency with primary authority for railroad safety within California, and the CPUC railroad safety program is one of the most comprehensive in the nation. As set out under several California Public Utilities (Pub. Util.) Code sections, the CPUC is responsible for inspection, surveillance, and investigation of the rights-of-way, facilities, equipment, and operations of railroads and public mass transit guideways.

These statewide railroad safety responsibilities are performed through the CPUC's Rail Safety Division (RSD). The Railroad Operations and Safety Branch (ROSB), a unit of RSD, enforces state and federal railroad safety laws and regulations governing freight and passenger rail in California. RSD staff protect California communities and railroad employees from unsafe practices on freight and passenger railroads by enforcing rail safety laws, rules, and regulations; performing inspections; and identifying and mitigating risks and potential safety hazards before they create dangerous conditions. This work is carried out in an organizational culture that puts public safety and risk management at the core of everything the CPUC does, and this is certainly true in RSD whose work is highlighted in this Annual Report for Fiscal Year 2019-2020.

Executive Summary

Rail Safety During the COVID-19 Pandemic

The global public health crisis from COVID-19 has affected everyone and presented numerous challenges to the rail industry and the CPUC's regulatory practices regarding that vital industry. Despite this unprecedented situation, the CPUC's RSD has adjusted its practice and has utilized other ways to accomplish the same oversight tasks and has continued to work diligently to ensure rail safety for the public and for rail employees. Thanks to the hard work and commitment of RSD's rail safety experts, the CPUC has been able to comply with federal and state safety regulations and launch several innovative programs that go above and beyond those requirements. Those activities are highlighted later in this Annual Report.

Because of the pandemic and guidelines from the federal Centers for Disease Control, RSD had to eliminate some inspection activities, such as riding in hi-rail vehicles during track inspections and riding in locomotive cabs on freight and passenger trains to inspect operational practices. Such activities in confined spaces with railroad personnel increase the risk of infection. However, this has not significantly changed RSD's regulatory oversight, as RSD was able to implement alternative but equally effective practices that allow inspectors to continue to conduct inspections, investigations, and other related activities. These alternative measures are described in other sections of this report.

Proactive Safety Efforts

RSD performs proactive safety efforts to reduce safety risks that, while not violations of regulatory requirements, nevertheless pose potential risks to public or railroad employee safety. These include the following:

- RSD inspectors complete **Risk Management Status Reports** (RMSRs) when they identify risks that may not be addressed by existing railroad rules or regulations. During FY 2019-2020, RSD inspectors created eight new RMSRs. Appendix B of this report provides an example of a Risk Management Status Report.

- RSD's **Crude Oil Reconnaissance Team** (CORT) obtains information from California refineries about large-volume crude oil shipments projected to enter the state, such as the origin of the oil (in particular, whether the shipments contain Bakken crude, which is more volatile than most other types of crude oil), arrival dates, and routes.

  CORT personnel also inspect crude oil transfer facilities and related infrastructure to verify compliance with state and federal railroad regulations, as well as CPUC railroad-related General Orders.

  During FY 2019-2020, CORT expanded its scope to cover additional hazardous materials-related activities besides crude oil shipments.

- In the **Railroad Bridge Evaluation Program** (RBEP), RSD inspectors focus on issues related to railroad bridges, which pose potentially significant safety risks to the public, railroad employees, and the environment should a railroad bridge suffer structural damage or other failure, especially while railcars are crossing over it. Such bridges face a variety of potential problems, such as corrosion of steel components, silt build-up around supports, fire damage, and vehicle collisions.

Union Pacific Railroad bridge, California coast

RSD inspectors collaborate with the Federal Railroad Administration (FRA) railroad bridge program and observe railroad bridge functionality and safety. RSD inspectors can cite bridge owners for violations of CPUC General Orders or applicable Federal regulations, and where conditions do not violate regulations but pose other safety hazards, inspectors may issue an RMSR.

During FY 2019-2020, RSD inspectors who specialize in bridges performed: 153 total bridge observations; 14 FRA track inspection reports (including track condition violations); 40 State General Order Inspections (including walkway and obstruction violations) and 7 RMSRs.

- The **Railroad Tunnel Evaluation Project** (RTEP) evaluates railroad tunnel conditions. Railroad tunnel structural integrity can be weakened by natural events, such as earthquakes, flooding, and soil erosion, and by derailments and other railroad accidents. This in turn can lead to significant risks to trains moving through tunnels.

There are approximately 120 tunnels in use and approximately 30 not in service. RSD staff have completed railroad tunnel inventories for all railroads operating in California.

BNSF Railway tunnel, Northern California

In FY 2019-20, RTEP inspectors inspected 24 tunnels, all before the end of January, when COVID-19-related restrictions on inspector activities required this activity to be curtailed.

- Through its **Rail Head Wear Project** (RHWP), RSD is working to address the risks associated with excessive rail head wear that can lead to train derailments in mountainous and high rail traffic areas.

- RSD staff volunteer in activities of the non-profit **Operation Lifesaver** (OLI), which administers a railroad safety public awareness campaign. RSD inspectors and other staff have volunteered to make OLI presentations throughout the state to schools, community organizations, drivers' education classes, bus driving workshops and trucking organizations, as well as educating the public at weekend events such as festivals and safety fairs. Appendix C shows several examples of RSD activities.

  During FY 2019-2020, RSD staff conducted 144 Operation Lifesaver presentations; participated in 26 community-wide events; and reached approximately 10,000 attendees.

- **Positive Train Control** (PTC) is designed to prevent a variety of accidents, including train-to-train collisions, over speed derailments, and incursions into work zones. PTC inspectors monitor the development, construction, implementation, and maintenance, and continuation of PTC systems in California.

  Due to COVID-19 safety precautions to reduce staff exposure, fewer PTC-related field activities were performed in FY 2019-2020 compared with the previous FY. Staff turned their focus to communicating with railroad personnel to monitor performance. With new safety protocols in place, staff performed the following:

  - Performed 76 PTC operational surveillance observations.
  - Monitored and participated in 27 PTC status meetings.
  - Conducted ongoing correspondence with the railroads to determine status, challenges, and issues of implementation and continuation.
  - Provided monthly reports of PTC activities to RSD management.

- RSD staff monitor implementation of **High-Speed Rail** (HSR) in California. With its high speeds and hundreds of passengers on each train, HSR poses large potential accident risks. Even at low speeds, accidents can have significant consequences. RSD, with its regulatory authority over HSR as a passenger rail system, has important responsibilities in helping to ensure its safety.

  RSD railroad safety staff are reviewing HSR developments and making sure that planning is incorporating all applicable CPUC General Order requirements.

- The **Heavy Grade Audit Project** (HGAP) is a new initiative for 2020. Its purpose is to identify potential and imminent risks, caused by changes in train make-up rules (the placement of individual railcars that make up a train), to the safe operation of freight trains in mountainous areas in California, where trains encounter steep grades and sharp curves.

RSD performs safe**ty complaint investigations** based on complaints received from a variety of sources, including railroad employees, railroad unions, and the public. In FY 2019-2020, RSD investigated 11 such complaints.

- The **General Order Training Program** (GOTP) was initiated to improve the understanding by RSD inspectors of CPUC's railroad's safety regulations Following training classes, students complete field exercises with an instructor. In FY 2019-2020, 9 General Order classes were held, and 41 inspectors were trained. In part due to this training, there was a 44% increase in the number of violations of General Order provisions detected by ROSB inspectors in this fiscal year, compared with the previous fiscal year.

Mandated Rail Safety Inspections and Investigations

RSD employs 41 inspectors who are federally certified in the five FRA railroad disciplines: hazardous materials, motive power and equipment, operations, signal and train control, and track. RSD inspectors perform **regular inspections focused inspections, accident investigations, and security inspections.** Examples of this work are shown in Appendices at the end of this report.

During FY 2019-2020 RSD inspectors:

- Performed 4,358 inspections and follow-up inspections to monitor the railroads' compliance with federal and state laws, and CPUC GOs.
- Performed 192 safety surveys (bridge and tunnel).
- Cited 11,839 federal regulation defects.
- Recommended civil penalties for 397 violations of federal regulations.
- Completed 575 CPUC General Order reports that identified 1,578 state regulation defects.

In FY 2019-2020, there were 764 reported railroad-related incidents in California, down from 885 in the previous fiscal year.

Investigations of Runaway Trains

In FY 2019-2020, RSD investigated five instances of uncontrolled train movements. An example of an investigation is shown in Appendix G.

Local Safety Hazard Sites

This Report includes a list of the accidents that have occurred at or near a local safety hazard site within the previous five years. These sites were identified in 1997 in a formal CPUC Decision. Within the previous five calendar years, California experienced 369 derailments. Of that total, 30 derailments, or nearly 8.1 percent, occurred at or near local safety hazard sites. Maps of these sites are included in Appendix H.

Fee Impact on Competition

Railroad user fees assessed in FY 2019-2020 on Union Pacific Railroad (UPRR), and BNSF Railway (BNSF), the two largest contributors, represented 0.37 percent of combined revenues and were unlikely to have had any effect on competition.

Challenges for Rail Safety

Major challenges faced by the Rail Safety Division's ROSB include:

- Trespassing along railroad rights-of-way and within railroad infrastructure, such as rail yards, is the leading cause of rail-related deaths in America. Hundreds of people die each year in the U.S. from rail-related trespassing accidents, and additional hundreds are injured.

  Many locations in California near railroad tracks have been occupied by homeless individuals and encampments and trespassing on railroad Rights of Way has become a frequent occurrence. Examples of RSD responses to this issue are shown in Appendix I.

- Another challenge has been the Federal Railroad Administration's waiver of a wide variety of safety regulations due to the COVID-19 pandemic. This has increased the importance of CPUC's railroad safety program. In response, RSD management has increased the surveillance and inspection activities carried out by its inspectors, who assess whether railroad field and maintenance operations comply with federal and state regulations. This includes increasing the frequency of unannounced inspections.

  This enhanced RSD regulatory activity aids in detecting inappropriate applications of the relaxed FRA regulations and allows RSD inspection staff to intervene before problems in any of the five railroad disciplines increase the likelihood of an accident.

- The COVID-19 pandemic has also created new challenges for RSD in providing protection to its staff, especially when staff must interact closely with the employees of regulated railroads.

  To lessen possible exposures to COVID-19, RSD staff follows guidance from the Centers for Disease Control and Prevention, the Governor's Office, and other applicable governmental bodies regarding such things as personal protective equipment and social distancing. Inspectors are provided face masks to be used whenever they are conducting field inspections and/or investigations. They are instructed to follow the social distancing guidelines issued by the relevant authorities when interacting with railroad personnel, as well as with other CPUC employees.

  As there is no guarantee that the railroad personnel meeting with inspectors comply with the same safety practices, RSD has taken steps to further reduce inspectors' contact with them.

California Public Utilities Code Requirements for this Annual Report

This report complies with California Public Utilities (PU) Code Sections 916, 916.1, 916.2, and 916.3.

- Pub. Util. Code Section 916 requires CPUC to report to the Legislature on its rail safety activities on or by November 30 of each year. In addition, Pub. Util. Code Section 916.3 requires CPUC to report on the actions it has taken to comply with Section 765.5, which requires CPUC to take all appropriate action necessary to ensure the safe operation of railroads in this state. This report chronicles the rail safety activities of ROSB and identifies the proactive efforts CPUC's railroad safety inspectors in the Rail Safety Division take to promote the safe operation of railroads during the previous fiscal year.
- Pub. Util. Code Section 916.1 requires CPUC to annually report the results of its investigations of runaway trains or other uncontrolled train movements that threaten public health and safety, as per Section 7661. This is included in this report in Chapter IV.
- Pub. Util. Code Section 916.2 requires CPUC to report to the Legislature on sites on railroad lines in California it finds to be hazardous. The report is to include a list of all derailment accident sites in the state where accidents have occurred within at least the previous five years, and a list of all railroad sites in the state that the Commission has determined to pose a local safety hazard (called Local Safety Hazard Sites [LSHSs]). Section 916.2 permits this report to be combined with the report required by Section 916. The list of derailments is located on the Commission's website at http://www.cpuc.ca.gov/rosb/, and the list of LSHSs, documented by calendar year, is presented in Chapter V.

I. Introduction

The California Public Utilities Commission (CPUC or Commission) is the California regulatory agency with primary authority for railroad safety within California, and the CPUC railroad safety program is one of the most comprehensive in the nation. Several California Public Utilities (Pub. Util.) Code sections set out the CPUC's responsibilities. In particular, under Pub. Util. Code Section 309.7, the CPUC is responsible for inspection, surveillance, and investigation of the rights-of-way, facilities, equipment, and operations of railroads and public mass transit guideways (a limited access rail that is not part of the general rail system).

The Rail Safety Division (RSD) advises the CPUC on all matters relating to rail safety, and proposes to the CPUC rules, regulations, orders, and other measures necessary to reduce the dangers caused by unsafe conditions on the railroads and other rail systems. Within RSD, three Branches – the Rail Operations and Safety Branch (ROSB), the Rail Transit Safety Branch and the Rail Crossings and Engineering Branch – are responsible for rail safety in general.[1]

ROSB is the branch of RSD that is responsible for this Annual Report. ROSB is responsible for protecting California communities and railroad employees from unsafe practices on freight and passenger railroads and performs the following:

- Enforces state and federal laws and regulations, CPUC General Orders (GOs), and directives relating to the transportation of persons and commodities by railroads;[2]
- Conducts safety inspections.
- Investigates accident and safety-related complaints.
- Identifies potential safety hazards on California railroads.
- Recommends safety improvements to the CPUC and the federal government to reduce, eliminate or mitigate risks and potential safety hazards before they create dangerous conditions.

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[1] The Rail Transit Safety Branch regulates rail transit systems such as streetcars and subways, while the Rail Crossings and Engineering Branch regulates highway-rail crossings. Their activities are not included in this Annual Report.

[2] A summary of applicable California Pub. Util. Code sections and CPUC General Orders is provided in Appendix A.

Title 49 of the Code of Federal Regulations (49 CFR) Part 212 established the State Safety Participation Program with the Federal Railroad Administration (FRA). The purpose of this state-federal partnership is to provide an enhanced investigative and surveillance capability by having state agencies assume responsibility for compliance investigations and other surveillance activities as a federal partner. ROSB may make civil penalty recommendations to the FRA when ROSB inspectors discover non-compliances with federal railroad safety regulations. California state laws complement the federal State Safety Participation Program and provide even greater protection to railroad employees and the public.

RSD employs inspectors with expertise in specific railroad disciplines: hazardous materials, motive power and equipment, operating practices, signal and train control, and track, as well as railroad bridges and tunnels.[3] The inspectors may also identify and address additional public safety risks associated with railroad systems. RSD employs 41 FRA-certified inspectors to perform safety inspections and investigations pursuant to the State Participation Program.[4]

RSD requires entry-level railroad inspectors to have a minimum of five years of direct railroad experience within a specific discipline. This experience is critical to understanding what constitutes safe railroad practices. CPUC also requires each applicant to pass a written and oral exam.

RSD requires all new hires to undergo one year of on-the-job training, depending on their depth of experience. To gain the FRA certification, all RSD inspectors participate in a two-week classroom training session with the FRA, followed by one week of training every year thereafter. Newly hired ROSB inspectors are each assigned an FRA on-the-job training manual. As they complete specific required tasks, the RSD or FRA railroad safety trainer signs off on the task. When all the required tasks are completed, the RSD inspector must then pass a certification field test. An FRA safety specialist who is discipline-specific takes the RSD inspector out for a day or more in the field to test the person's knowledge and ability to perform as an independent inspector.

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[3] FRA certifies the inspectors as experts in these disciplines, except for bridges and tunnels. CPUC proactively identified bridges and tunnels as risks to public safety and employs one track-certified inspector and one bridge inspector, both with extensive experience, to focus on bridge and tunnel observations.

[4] Pursuant to 49 CFR Part 212.

II. Proactive Safety Efforts

Section 916.3 requires CPUC to report on the actions CPUC has taken to comply with section 765.5, which requires CPUC to take all appropriate action necessary to ensure the safe operation of railroads in this state.

Safety culture improvement and proactive risk management are integral to RSD's mission. In addition to investigating specific violations of state and federal regulations, RSD inspectors, as well as support and analytical staff, look beyond the regulations toward more comprehensive overall proactive safety oversight.

CPUC strives to achieve a goal of zero accidents and injuries across all the utilities and businesses it regulates, and within all CPUC facilities. To achieve that goal, RSD embraces a comprehensive safety management approach that integrates public policy, risk management, and compliance with the federal and state laws and the CPUC General Orders.

To promote a comprehensive safety culture, RSD uses proactive tools, cooperative engagement, and presentation methods explained below in sections A through K.

A. Risk Management Status Reports

During field work, RSD inspectors may identify items of concern that are either: (1) out of their area(s) of expertise; (2) outside of formal/official reporting and action protocols; or (3) despite prior formal or informal regulatory action, are still safety risks. When this happens, the inspectors complete a Risk Management Status Report (RMSR).

Once an RMSR is documented, the assigned inspector works with his or her supervisor to eliminate or mitigate the risk. The inspector and supervisor meet with the responsible railroad, shipper, or associated entity's responsible representative, convey the safety risk linked with the issue, and define a time period in which the risk should be addressed. The RSD inspector performs a follow-up inspection to determine whether the risk was eliminated or sufficiently mitigated. If the railroad fails to take the steps required to resolve the issue, the RSD Program Manager will pursue the matter with the responsible railroad officials, and if necessary, bring the issue up to the Director or to the CPUC for further enforcement action.

An example of an RMSR is presented in Appendix B.

During FY 2019-2020:

- 2 previous fiscal year RMSRs were closed out (i.e., the recommendations were implemented and/or an alternative conclusion was reached with the railroad).
- 8 new RMSRs were created. The issues were as follows:
    - 3—Bridge safety
    - 4—Railyard Operations
    - 1—Railyard Safety Location

Six of these new reports were closed. ROSB seeks to resolve the remaining two reports during the next fiscal year.

B. Crude Oil Reconnaissance Team

RSD created the Crude Oil Reconnaissance Team (CORT) after the accident in the town of Lac-Megantic in Quebec, Canada on July 6, 2013, where an unattended 74-car freight train rolled down a slope and derailed. The resulting explosion killed 47 people and destroyed large portions of the town.

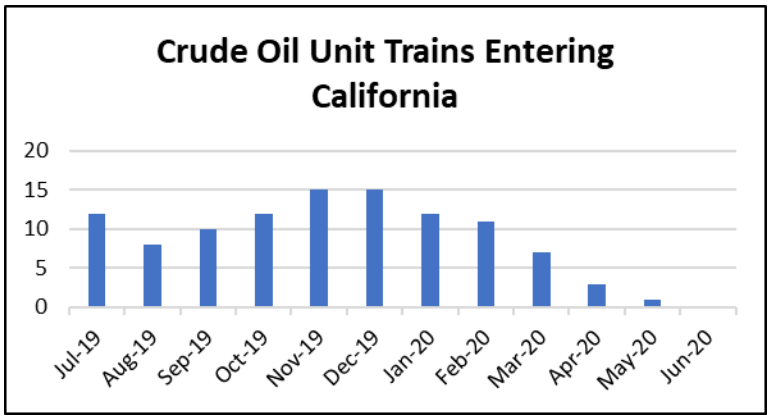
CORT is comprised of RSD inspectors from all five railroad disciplines (track, signal and train control, hazardous materials, motive power and equipment, and operating practices). Team members obtain information from California refineries, such as planned crude oil unit train shipment arrival dates and routes. A unit train is a train that is composed of cars carrying a single type of cargo, and a crude oil unit train carries only crude oil. The trains tracked by CORT may have 100 individual tank cars. CORT also verifies the origin of crude oil shipments, in particular, whether the shipments contain Bakken crude, which is more volatile than most other types of crude oil. The team monitors crude oil unit trains to inform RSD if Bakken crude enters the state.

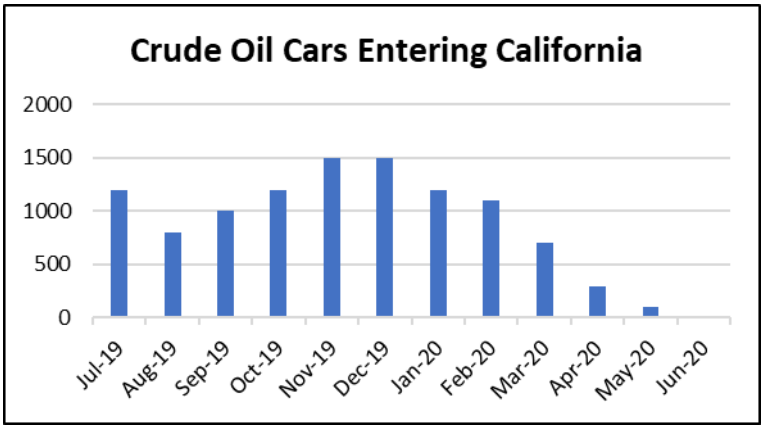
Currently, there are two active crude-oil-by-rail unit train facilities in California: Plains All American facility in Taft, near Bakersfield; and the Kern Oil refining facility, in Bakersfield. A total of 104 crude oil unit trains entered California during the past fiscal year, with each unit train carrying 100 tank cars. The Plains All American facility received 96 unit oil trains, all originating in Edmonton, Canada, and containing heavy crude. Kern Oil Refinery received 8 light crude oil trains, all originating from Carlsbad, New Mexico. Last year, comparable figures were 75 unit trains entering California, each carrying 100 loaded tank cars, with the Plains facility receiving 68 unit trains and the Kern facility receiving 7.

Most of the crude oil entering the state arrives in unit trains (in FY 2019-2020, 104 crude oil unit trains entered California). However, crude oil also enters in individual tank cars that are part of trains carrying mixed cargos, known as "manifest trains." Crude oil cars travelling in manifest trains are difficult for CORT to track until they reach a rail yard. This is because refineries do not have information about which manifest trains are carrying crude oil cars, and therefore, cannot inform RSD about their arrival dates, routes, or contents. Given that on a daily basis, up to 30 manifest trains that have the potential to carry crude oil cars may enter the state, and that such trains might have 50 to 100 cars but only a small number of these trains, and only a small number of the cars on them, might be carrying crude, it is difficult for RSD to track such trains and plan inspections.

In addition, RSD does not have the personnel to check the large number of manifest trains, and cars on such trains, that might be carrying crude oil. Information about tank car contents is submitted to emergency management agencies if a derailment or other emergency occurs, but not on a routine basis. However, once crude oil tank cars reach rail yards, RSD is able to obtain information about them from the Yardmasters, who know the contents of the various tank cars within their facilities as well as their final destinations once they leave the yards.

CORT personnel also inspect crude oil transfer facilities and related infrastructure to verify compliance with state and federal railroad regulations, as well as CPUC railroad related GOs. As part of these efforts, the team obtains data from each facility pertaining to its actual and expected future monthly train count, which are used to prepare a monthly CORT report on crude oil shipments coming into the state.



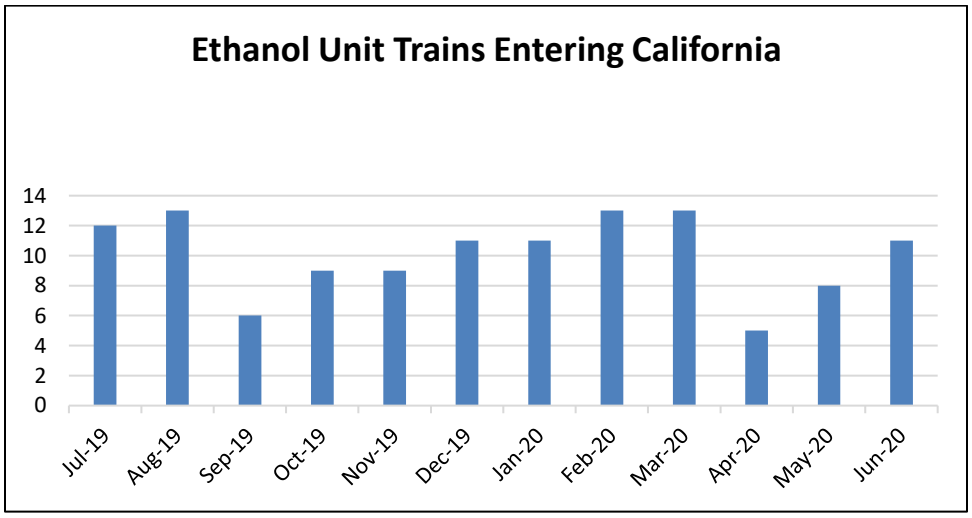


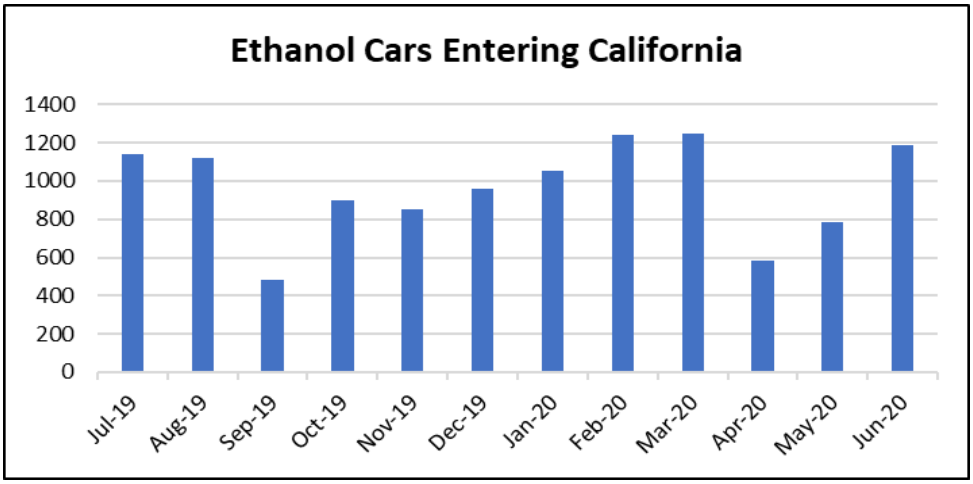
Ethanol unit trains entering the state. During FY 2019-2020, CORT expanded its scope of work to cover additional hazardous materials-related activities besides crude oil shipments. Starting in February 2019, the team began tracking the number of unit trains carrying ethanol entering the state in addition to the shipments of crude oil. Ethanol is an extremely volatile commodity that moves in large volumes throughout the state. There are two facilities that handle unit trains of ethanol in California: Kinder Morgan and Nustar. As with crude oil, individual ethanol cars entering the state cannot be tracked until they reach rail yards and are assembled into trains with known final destinations. Ethanol shipments are included in the monthly CORT report.

Kinder Morgan, located in Wilmington, receives ethanol by rail, then moves it via pipeline to various refineries in Los Angeles County. Lomita Rail Terminal handles the delivery and removal of tank cars going to the Kinder Morgan facility. This rail terminal received 114 unit trains of ethanol in FY 2019-2020, ranging in size from 64 to 96 cars. BNSF transports the cars from Arizona to Wilmington, California, where Lomita Rail Terminal then delivers them to Kinder Morgan. When there is no room for these cars at the Kinder Morgan facility, they are stored in a siding outside of the Kinder Morgan facility or a rail yard in Barstow.

Nustar Energy is located in Crockett. During FY 2019-2020, the facility received 7 ethanol unit trains, each with 96-100 cars. The trains arrived from Canada via Union Pacific-controlled track. Upon arrival, the product is placed in storage tanks until being shipped by truck or pipeline to various refineries.

On October 15, 2019, two ethanol storage tanks caught on fire at the NuStar Energy facility. The incident shut down their rail service for several months. The facility started receiving ethanol-by-train again in March 2020.





Storage of tank cars containing Liquefied Petroleum Gas. In April 2019, the team began tracking the number of individual tank cars containing Liquefied Petroleum Gas (LPG) in storage at various locations throughout California. Data produced by these new activities will assist other agencies if cars carrying such commodities release their contents due to derailments or other types of incidents.

Several short-line railroads have begun leasing empty track space to vendors for storage of both empty and loaded cars containing LPG as a means of generating additional revenue. When there is a demand for one or more of these cars, they are removed from storage on a first-in first-out basis.

To discover the number of stored cars carrying these commodities, CORT contacts FRA personnel, railroad managers, vendors, and train crews to locate yards storing both loaded and empty cars throughout California. To date, six storage areas have been located: Arizona and California Railroad, Pacific Sun Railroad, PBF Energy, Santa Maria Valley Railroad (the only company currently known to store loaded cars in excess of 30 days), Sierra Northern Railway, and Northwestern Pacific Railroad. Storage at each of these locations fluctuates between 50 and 150 cars per month.

RSD conducts compliance inspections of these locations on a regular basis and tabulates current numbers in the monthly CORT report. When a defect is found, such as missing placards, the railroad and the vendor are both notified. Depending on the lease agreement, either the railroad or the vendor is responsible for correcting the defect.

RSD hazardous materials inspectors on LPG car located on storage track

C. Railroad Bridge Evaluation Program

Railroad bridges and their approaches pose potentially significant safety risks when their ability to carry rail traffic declines due to corrosion of steel components, silt build-up around supports, excessive loads, and other conditions. Wooden railroad bridges are potentially subject to fires, fungal decay, and other risks. Fire can cause damage to non-wooden structures as well. Vehicles can collide with bridge structures that span roadways. Many railroad bridges span bodies of water, major highways, and/or areas of high population density, and carry a variety of flammable and other hazardous materials. Such conditions can create dangerous consequences to the public, railroad employees, and the environment should a railroad bridge suffer structural damage or other failure, especially while railcars are crossing over it. In addition, some railroad bridges have walkways that fail to meet General Order requirements.

In the Railroad Bridge Evaluation Program (RBEP), two RSD inspectors focus on issues related to rail bridges. The inspectors perform bridge observations, prioritizing these observations based on several factors, such as the proximity of railroad bridges to the identified Local Safety Hazard Sites across the state, or to saltwater bodies, where salinity can cause increased rates of corrosion. Inspectors can cite bridge owners for violations of General Orders (e.g., walkway tripping hazards, under GO 118-A) or applicable Federal regulations (e.g., vegetation close to track-carrying structures that becomes a fire hazard, under 49 CFR 213.37). Where conditions do not violate regulations but pose other safety hazards, inspectors may issue an RMSR.

RSD involvement in railroad bridges through the RBEP is an important part of the overall regulatory framework covering this aspect of railroad safety. The FRA has only six railroad bridge inspectors to cover approximately 80,000 railroad bridges in the United States. One FRA inspector is assigned to California, as well as to 11 other states.

Title 49 CFR Part 237 requires railroad track owners to create a bridge management program, perform annual bridge inspections, and calculate load capacities. RSD and the FRA have agreed to work in concert to ensure that railroad track owners complete their bridge management programs and conduct joint railroad bridge observations.

During FY 2019-2020, RSD inspectors who specialize in bridges performed the following:

- 153 total bridge observations.
- 14 FRA track inspection reports (including track condition violations).
- 40 State General Order Inspections (including walkway and obstruction violations).
- 3 RMSRs (notifications to railroads about bridge safety concerns not covered by regulations).

An example of a railroad bridge where problems were found by a RSD inspector is illustrated below:

On November 18, 2019, an inspector observed a handrail on a bridge near Ludlow that was leaning away from the tracks instead of being in an upright position. On closer inspection, the handrail was found to be missing six vertical support bolts and was in an unsafe condition. An RMSR was submitted to BNSF Railway, resulting in the company installing the missing bolts on November 20, 2019.

Before: Handrail not in upright position

Before: One of six missing bolts

After: Bolts added to handrail

After: Handrail in correct position

D. Railroad Tunnel Evaluation Project

Railroad tunnel structural integrity can be weakened by natural events, such as earthquakes, flooding, and soil erosion, and by derailments and other railroad accidents. This in turn can lead to significant risks to trains traveling through tunnels. RSD is helping to address this problem by assigning staff to evaluate railroad tunnel conditions in the Railroad Tunnel Evaluation Project (RTEP).

RSD staff have completed railroad tunnel inventories for all railroads operating in California. There are approximately 120 such tunnels that are in use and approximately 30 that are not in service. RTEP inspectors are proceeding to inspect these tunnels. The RTEP inspection team is made up of RSD track

inspectors. Team members inspect the tunnels and track structures within tunnels by walking the track. The inspectors document tunnel and track conditions by taking photographs, and videos, and completing tunnel survey forms. Information collected on the survey forms includes tunnel history; height and width measurements; rail wear measurements; conditions of tunnel walls, ceilings, and floors; adequacy of drainage; and ballast conditions. Future tunnel surveys can use this information to assess whether tunnel conditions have worsened and if so, to what extent. A representative of the railroad responsible for the tunnel is present during the inspections, and they are made aware of concerns brought up by the RSD inspection team. Due to COVID-19-related restrictions on inspector activities, no tunnel inspections were performed after January 2020 through the end of the fiscal year.

The RTEP inspected 24 tunnels this past fiscal year. For example, on January 22, 2020, team members conducted an observation of a tunnel ("Tunnel 17") near the city of Newcastle that hosts Amtrak passenger trains and is UPRR's major freight route to and from Bay Area port facilities. The inspectors noted an approximately 100-foot section of track that was not draining properly, caused by mud and silt build-up, in violation of 49 CFR Section 213.103(c). This build up pushed ballast out of place, resulting in inadequate support of the tracks at that location. Loss of support causes rail equipment to rock side to side and can result in the equipment hitting the sides of the tunnel, potentially causing a derailment. On February 18, 2020, UPRR repaired the defective section by replacing the ballast with clean ballast that allowed water to flow out of the tunnel. In a follow-up inspection on February 19, RTEP inspectors verified that the repairs were completed.

Tunnel 17 portal

Before: Ballast dislodged due to mud & silt buildup

After: Clean ballast installed, drainage restored

E. Rail Head Wear Project

Excessive rail head wear can cause train derailments, especially on sinuously curved track in mountainous areas. Rail head wear can cause problems affecting uniform track gage and train balance while the train is traversing a curve. If the rail head wears too far, two main issues arise: (1) the track gage widens and (2) the rail is subject to tilting and rolling over under the weight of lateral dynamic train forces. It is imperative that railroads establish good rail wear monitoring and maintenance plans with remedial contingencies based on the monitored rail head wear life expectancy, especially in multi-curved mountainous areas.

FRA and the railroads collect rail head wear measurements under some circumstances. However, as described in previous Annual Reports, there are no regulations mandating when rail should be replaced due to rail head wear. There are no current efforts by FRA to promulgate such regulations.

During FY 2019-2020, RSD continued its inspection efforts concerning rail head wear. In its Rail Head Wear Project (RHWP), RSD is monitoring rail head wear by utilizing high-grade manual rail head wear gages in critical areas throughout California. All RSD Track inspectors have been issued rail wear gauges to take rail wear measurements. Inspectors measure rail head wear during tunnel surveys and derailment investigations, and at Local Safety Hazard Sites. Depending on site-specific conditions, they may also take measurements during regular and focused inspections. The RHWP inspectors also compare measurements with data collected by the FRA and the railroads. RSD track inspectors discuss rail wear measurement findings with their supervisors and railroad company officers. By collecting evidence of the seriousness of head wear, RSD potentially can influence the responses of railroads and the FRA to this problem.

Rail head wear gage used by RSD inspectors

When an inspector and his/her supervisor believe that rail wear at a specific location is endangering train traffic and the response of the railroad has been inadequate, RSD management brings these concerns to higher-level railroad officials. This ongoing project has already allowed RSD to make railroads aware of the risks associated with some of their currently existing rail replacement plans and thus has had a positive impact on rail replacement management by some railroads.

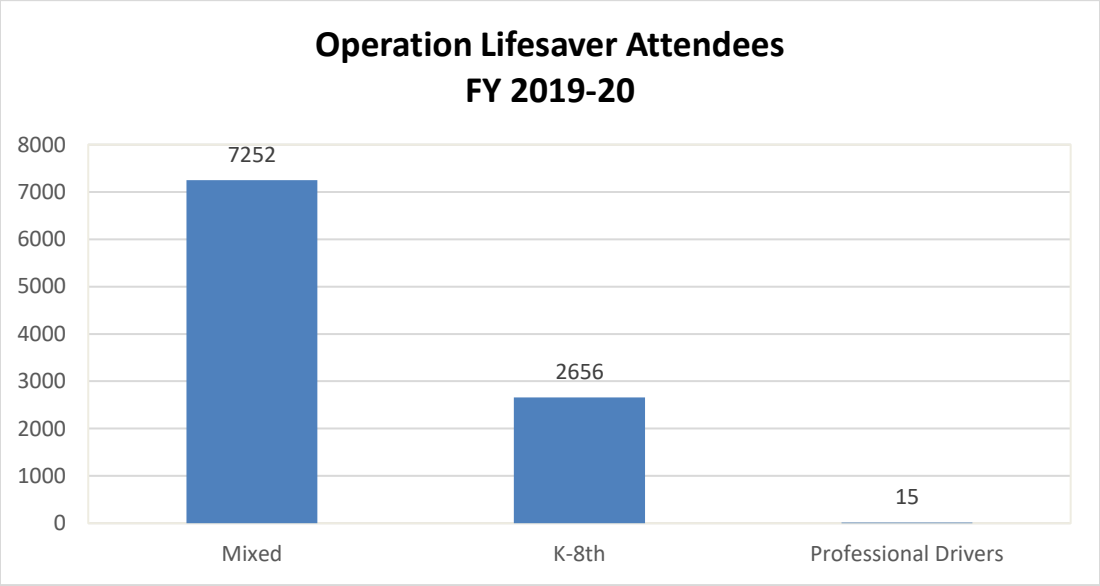
RSD plans to continue its collection of rail head wear information and to advocate for more effective rail head wear management policies by railroads. This effort is consistent with the RSD's practice of looking beyond the regulations.

F. Operation Lifesaver Presentations

Operation Lifesaver, Inc., a nonprofit organization, administers a public safety awareness campaign and is funded primarily by grants from the FRA. Operation Lifesaver's mission is to end collisions, deaths, and injuries at highway-rail grade crossings and on rail property through a nationwide network of volunteers who work to educate people about rail safety.

RSD inspectors and other staff have volunteered for Operation Lifesaver. These personnel volunteer throughout the state, providing presentations to schools, community organizations, drivers' education classes, bus driving workshops and trucking organizations, as well as educating the public at weekend events such as festivals and safety fairs about the dangers of being on or close to tracks, the meaning of warning signs, and other safety-related topics.

Appendix C provides examples of Operation Lifesaver presentations.



During FY 2019-2020, RSD staff:

- Made 144 Operation Lifesaver presentations, including over 50 Operation Lifesaver presentations to kindergarten through 8th grade (K-8th) students.
- Participated in 26 community-wide events
- Reached approximately 10,000 attendees

Operation Lifesaver events included:

- Cal Poly San Luis Obispo Week of WOW
- California DMV Wellness Expo - Sacramento
- California Office of Emergency Services Day of Preparedness – Sacramento
- Del Mar Junior Lifeguards
- Guadalupe Elementary School
- Judicial Council of California Health Fair – San Francisco
- Keeping Kids Safe - Burlingame
- Kennedy Middle School – El Centro
- Lodi Agventure
- Manteca Agventure
- McKenzie Middle School - Gaviota
- Metrolink/Redlands Arrow Groundbreaking Event
- Muir Elementary School - Merced
- Patterson Truck Drivers Safety Event
- Porsche-Burlingame-Keeping Kids Safe
- Port Hueneme Banana Festival
- Rail Safety Fair - Truckee
- Riverside Community Health Fair
- San Clemente Junior Lifeguards
- San Clemente Ocean Festival
- September Rail Safety Month Event Truckee/Nevada
- Stockton Agventure
- Tulare County of Governments Safety Event
- Ventura County Banana Festival
- Vision 2000 Career Day - Sacramento
- Zenith Agventure Safety Conference - Fresno

G. Positive Train Control

Positive Train Control (PTC) is technology designed to prevent a variety of accidents, including train-to-train collisions, over speed derailments, and incursions into work zones.

The Rail Safety Improvement Act of 2008 (Pub. L. No. 110-432) required each Class I railroad and each entity providing regularly scheduled, intercity or commuter rail passenger service to implement an FRA-certified Positive Train Control (PTC) system by December 31, 2015 on:

- Its main line over which 5 million or more gross tons of annual traffic and poison- or toxic-by-inhalation hazardous materials are transported, and
- Its main line over which intercity or commuter rail service is regularly provided.

In October 2015, in the Positive Train Control Enforcement and Implementation Act of 2015 (Pub. L. No. 114-73), Congress extended this deadline to December 31, 2018, and included provisions for railroads to request an additional 24-month extension to December 31, 2020, if certain criteria are met.

PTC may use a combination of wired or wireless digital communications, global positioning, and fixed wayside signal systems to send and receive a continuous stream of data about the location, direction, and speed of trains. PTC is designed to prevent train-to-train collisions involving different track blocks, over speed derailments, incursions into established work zones, and movement through a track switch left in the wrong position. If a train does not slow for an upcoming speed restriction, stop indication, a switch improperly aligned, or a work zone boundary which has not been given the approval to pass by the Employee-In-Charge, PTC will alert the engineer. If an appropriate action is not taken by the engineer, PTC will apply the train's brakes before the speed restriction, stop indication, switch in wrong position location, or work zone is violated.[5]

Each railroad that owns track (host railroad) is required to implement PTC along all tracks covered under the above laws. There are several different PTC systems available that meet federal requirements, and different PTC systems are or will be in use by different railroads. This poses challenges when different systems are used by the host railroad and other railroads using that track (tenant railroads). Two different types of PTC systems are in use within California. In order to traverse host territory, each tenant must have interoperable PTC onboard equipment, i.e., the different PTC systems must be able to communicate with each other. Achieving interoperability poses technical and administrative challenges that have contributed to delays in PTC implementation.

RSD has two PTC inspectors. One has an extensive technology background, which is essential in understanding the complexities of PTC hardware and software design; the other has expertise in railroad operations. The group also has a lead, a senior inspector with railroad operations expertise. The PTC inspectors have been actively engaged in observations of design review, component and wayside

5 The 2014 and 2015 Annual Reports to the Legislature provide more detail on PTC technology.

appurtenance testing, PTC system, train interface operations, inspections, and direct observations during the development, construction, implementation, maintenance, and continuation of PTC systems in California.

California PTC Status: Passenger Railroads[6]

In the passenger railroad industry, work in FY 2019-2020 focused on remaining activities towards conditional certification, which is expected to be completed by the December 31, 2020 deadline; the upkeep of PTC equipment; and continuance of PTC system functionality.

	PASSENGER RAILROAD	STAGE OF PTC IMPLEMENTATION
1	SCAX	Conditional Certification.[7] Interoperability with tenants BNSF, UP, SDNX, and ATK on all host territory.
2	SDNX	Conditional Certification. Interoperability with tenants SCAX, ATK, BNSF, and PSRR.
3	SMART	In Extended RvSD and PTC Safety Plan under review as prerequisite for Conditional Certification consideration. Interoperable with tenant NWP.
4	ATK	ATK is a tenant railroad in California. Interoperability with host railroads SCAX, SDNX, BNSF, and UP.
5	PCMZ	In Extended RvSD and PTC Safety Plan under review as prerequisite for Conditional Certification consideration. Interoperability with tenants ATK, UP, and ACE.
6	ACE	ACE is a tenant railroad in California. Interoperable with host railroad UP and Caltrain.

California PTC Status: Freight Railroads

In the freight railroad industry, work in FY 2019-2020 focused on the upkeep of PTC equipment and ongoing maintenance of PTC system functionality. Two freight railroads in California, UPRR and BNSF, are required to implement a PTC system as per federal regulations as set forth in 49 CFR 236.1005 (Requirements for Positive Train Control Systems). In general, short line railroads do not fall under the federal requirements to install PTC on their own railroad because they do not carry passengers or meet other criteria covered under the applicable regulations. However, the host railroad can require a short line to have PTC interoperability when the short line is operating on the host tracks. Three short line railroads, NWP, PSRR, and SJVR, must meet this requirement.

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6 See List of Abbreviations at the end of this Report for explanations of railroad abbreviations in the following two tables.

7 FRA Conditional Certification of the railroad's Safety Plan and PTC system granted. The Safety Plan demonstrates to the FRA that the respective railroad's PTC system meets all of the federal requirements and works as stated.

	FREIGHT RAILROAD	STAGE OF PTC IMPLEMENTATION
1	BNSF	All required subdivisions in California have PTC installed and in revenue service. BNSF is PTC interoperable with SCAX, SDNX, ATK, and UP.
2	UP	All required subdivisions in California have PTC in revenue service. UPRR is interoperable with BNSF, SCAX, ATK, ACE, and PMCZ.
3	PSRR	SDNX requires PSRR to equip their locomotives with PTC equipment that PSRR operates on SDNX lines. PSRR's parent company is Watco Companies, LLC. PSRR is interoperable with SDNX to satisfy the requirement.
4	SJVR	UP and BNSF requires SJVR to equip their locomotives with PTC equipment that SJVR operates on UP and BNSF lines. SJVR's parent company is Genesee & Wyoming Inc. Installation and testing have occurred outside of California to satisfy this requirement.
5	NWP	SMART requires NWP to equip their locomotives with PTC equipment that NWP operates on SMART lines. NWP is interoperable with SMART to satisfy this requirement.

RSD staff will continue to monitor the progress of PTC in California and make recommendations to ensure that carriers operate and maintain safe and effective systems.

Due to COVID-19 safety precautions to reduce staff exposure, fewer PTC-related field activities were performed in FY 2019-2020 compared with the previous FY. Staff turned their focus to communicating with railroad personnel to monitor performance. With new safety protocols in place, staff performed the following:

- Performed 76 PTC operational surveillance observations.
- Monitored and participated in 27 PTC status meetings.
- Conducted ongoing correspondence with the railroads to determine status, challenges, and issues of implementation and continuation.
- Provided monthly reports of PTC activities to RSD management.

H. California High-Speed Rail

California High Speed Rail System

The California High Speed Rail Authority (CHSRA), located within the California State Transportation Agency, is responsible for planning, designing, building and operation of the California High Speed Rail (HSR) system. The HSR system has been planned to connect San Francisco to the Los Angeles basin. Eventually, the system has been planned to extend to Sacramento and San Diego, totaling 800 miles with up to 24 stations. Current estimates are that the first segment, Merced to Bakersfield, will begin service in 2029, followed by the full Silicon Valley to Central Valley Line (San Francisco and Merced to Bakersfield) in late

2031. Phase 1, San Francisco and Merced to Los Angeles/Anaheim, is projected to begin service in late 2033. There are no estimated completion dates for the Sacramento and San Diego sections.

XpressWest High Speed Rail System

XpressWest, a subsidiary of Virgin Trains USA, is planning a privately financed high-speed line. As proposed, the project would consist of a 170-mile long, electric high-speed passenger rail system between the town of Apple Valley, near Victorville, in California and Las Vegas, with possible extensions to other cities, such as Los Angeles and Palmdale. Around 135 miles of the system will be in California with the remaining 35 miles in Nevada. The project is scheduled to break ground by the end of 2020 and begin service in 2023.

RSD's Role

With its high speeds and hundreds of passengers on each train, HSR poses large potential accident risks. Even at low speeds, accidents can have significant consequences. RSD, with its regulatory authority over high speed rail as a passenger rail system, has important responsibilities in helping to ensure the safety of HSR.

RSD staff inspect joint corridor locations where HSR construction sites and conventional freight train and passenger train properties interface. These inspections focus on HSR construction building activities that may endanger railroad workers on adjacent properties and/or potentially interfere with conventional railroad operations. The work associated with HSR can create unsafe conditions in close quarters between HSR and railroad properties. For example, locations where HSR contractors are moving building materials and equipment that could come into proximity of train operations creates a safety risk for HSR and railroad workers.

RSD receives, reviews and processes crossing applications from the CHSRA and XpressWest for grade crossing improvements. The review process includes that the applications incorporate all applicable CPUC General Orders and California Public Utilities Codes, as well as applicable federal regulations. The applications mostly consist of overpass and underpass structures (which are referred to as grade separations) and related construction plans that eliminate the need for at-grade crossings. While grade separated crossings are more expensive than the at-grade crossings that are common on conventional railroad systems, grade separation eliminates train collisions with vehicles and pedestrians at crossing locations.

RSD staff also inspect the construction sites to ensure that compliance with all applicable CPUC General Orders, especially those regarding close clearances, are being followed as overpasses, trestles, crash walls and other structures are being erected.

RSD staff attend meetings and conduct site inspections to monitor progress to stay apprised of the two HSR projects currently underway in California. While RSD staff have been closely following the progress of the CHSRA for several years, the activity for second HSR system in the state, XpressWest, has begun to increase. This increased activity consists of new crossing applications being received from XpressWest in preparation for construction work to begin. RSD has set up a new team of rail crossing staff to work directly with XpressWest's team as RSD works on processing these crossing applications and working through the process with XpressWest.

Once construction advances to the track construction phase and operational tests are ready to begin, RSD oversight will include discipline-specific inspections, as well as incident investigations in the event of violations of state and federal laws, pursuant to 49 CFR 213 Subpart G, Train Operations at Track Classes 6 and Higher.

Applicable CPUC GOs that are enforced during the planning and initial stages of construction include:[8]

- GO 22-B Accident Reporting
- GO 26-D Clearances
- GO 88-B Highway-Rail Crossings
- GO 118-A Walkways

In FY 2019-2020, RSD staff performed the following:

- Rail crossings engineers reviewed 11 applications for alterations of railroad crossings and made recommendations to improve pedestrian and automobile safety.
- Rail crossings engineers processed eight applications for grade-separated crossings in five counties (Kern, Tulare, Madera, Fresno and Kings) to ensure that the applications complied with CPUC General Orders regarding vertical clearance.
- HSR staff attended a CHSRA open house meeting about the San Francisco to San Jose project section.

I. Heavy Grade Audit Project

The Heavy Grade Audit Project (HGAP) is a new ROSB initiative for 2020. The purpose of HGAP is to look beyond the regulations to identify potential and imminent risks, caused by changes in train make-up rules, to the safe operation of freight trains in mountainous areas in California, where trains encounter steep grades and sharp curves.

Train make-up refers to the placement of individual railcars that make up a train. A typical train consists of one or more locomotives — the power and control units where the train engineer and conductor sit at the front of the train — followed by connected railcars. Freight trains carry a variety of freight using different types of railcars that vary in capacity, length, and weight. When assembling a train, railroads consider a variety of factors — such as each car's weight, length, freight, and whether it is loaded or empty — when determining its position in the train. Additional locomotives also can be placed at other locations within trains. The lead locomotive(s) pull the train and provide control for other functions, including braking. Additional locomotives placed in the middle or end of a train helps with controlling long trains by asserting

[8] A list of railroad-specific General Orders is presented in Appendix A. General Order 176, Overhead 25 kV Electrification for HSR, is enforced by a different unit, the Safety and Enforcement Division, Electric Safety and Reliability Branch.

additional power for ascending grades and additional braking for descending grades. Train make-up is also dependent on external conditions, such as variations in terrain and weather conditions.[9]

Train make-up affects the weight distribution of trains and their ability to safely transit railroad track, depending on such factors as track grade and curvature, and how crews handle train speed and braking. Improperly assembled trains are more susceptible to derailment. For example, if cars are arranged such that empty rail cars alternate with loaded, heavy cars, the empty cars can become compressed between the loaded cars and derail when the engineer applies the train's brakes. Similarly, if the engineer accelerates the train too abruptly it may pull the rail cars apart and/or derail them. Mountainous areas with steep grades and sharp curves pose the greatest potential derailment risks. These risks also have increased as the railroads have increased the length of their trains.[10]

Although the FRA has issued non-binding guidance, there are no FRA regulations directing specific train make-up arrangements. Under a May 2004 settlement agreement, CPUC has the power to enforce the train make-up rules set by the two major freight railroads operating in the state, UPRR and BNSF, for their own operations. These railroads also are required to notify the CPUC on or before the day they change their make-up rules, including an explanation of the processes or decision criteria employed by the railroads in order to assess the safety of the proposed rules and the application of the criteria to the site in question.[11] However, the railroads can remain in compliance with the settlement agreement and still alter their make-up rules in ways that potentially increase derailment risks.

It is because of these potential risks that RSD has initiated the HGAP. HGAP inspection teams conduct field inspections to determine how changes in make-up rules may affect the safety of railroad operations. Among other activities, RSD inspectors discuss the configuration changes with train crews to discover whether the crews themselves have experienced increased difficulties, received adequate training, or perceived any new risks in train operations over sections of track where the new rules are in force. HGAP teams also assess the effects train make-up rule changes may have on tracks and bridges, such as increased rail wear or the structural integrity of bridges.

When HGAP personnel find that a rule change may increase safety risks, they bring their concerns to the attention of RSD management. RSD managers and inspectors may then meet with railroad management to discuss these concerns. The HGAP team can explain its findings, share any risk data team members have collected, and show railroad management why RSD believes that the rule change should be modified or withdrawn.

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9 United States Government Accountability Office, "Rail Safety: Freight Trains Are Getting Longer, and Additional Information Is Needed to Assess Their Impact," GAO-19-443, May 2019, p. 6.

10 GAO, ibid., pp. 11-15.

11 Commission Decision 06-02-013 "Opinion Modifying Decision 97-09-045 To Conform It To Federal Court Decisions," February 16, 2006.

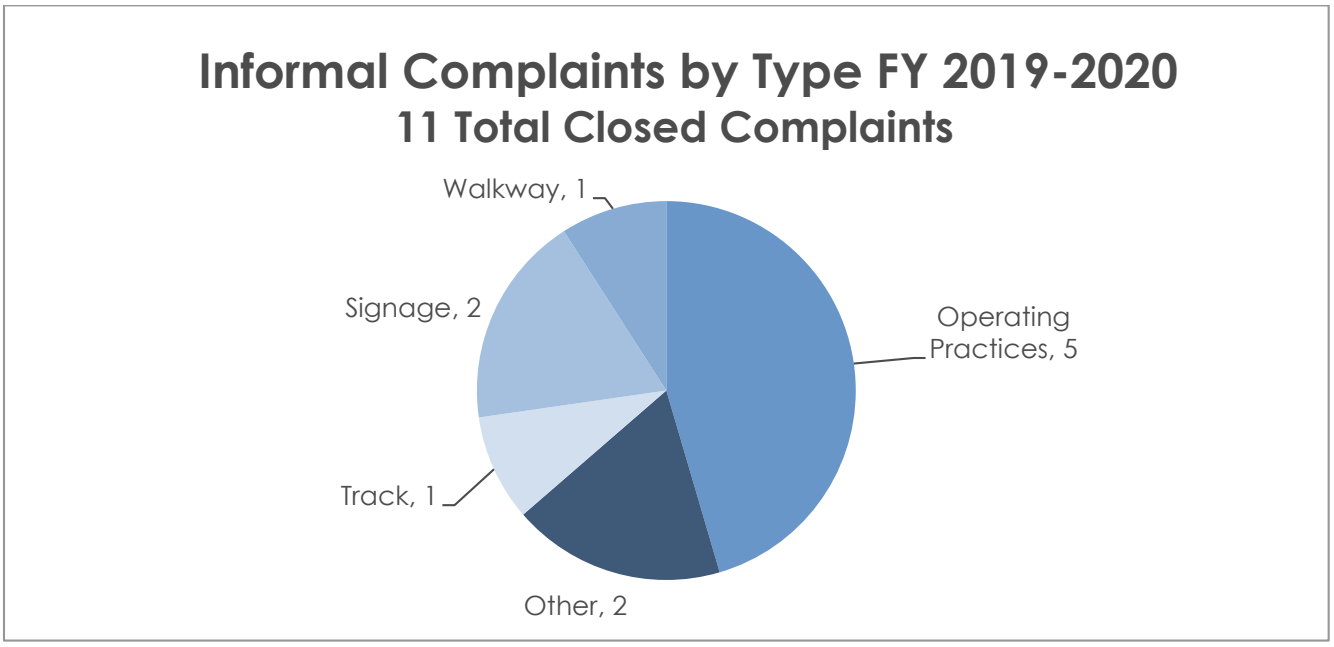
The HGAP program is another example of RSD's proactive public safety investigative initiatives intended to reduce safety risks in railroad operations.

J. Safety Complaint Investigations

RSD investigates complaints related to railroad safety that are received from a variety of sources, including railroad employees, railroad unions, and the public. In FY 2019-2020, RSD investigated 11 such complaints.

In these investigations, RSD inspectors may find non-conformances with railroad safety regulations. Where these involve state regulations, RSD directs the railroads to follow proper procedures. If the complaint pertains to federal regulations, RSD inspectors communicate with the FRA to synchronize investigation tasks to conclusion. In a few cases, upon inspecting the properties in question, RSD has found that the regulatory non-compliances or other safety issues that were raised in the complaints do not exist or have already been corrected and informs complainants that no action is necessary.

In many instances, RSD will look beyond the regulations in evaluating non-regulated risks and other safety issues raised by complainants, and strive to work with railroads, shippers and other entities associated with the complainants' safety concerns to find resolutions. However, in some cases, such as complaints regarding homelessness, RSD may lack the regulatory authority to resolve an issue raised by a complainant despite the safety hazards they describe.



K. General Order Training Program

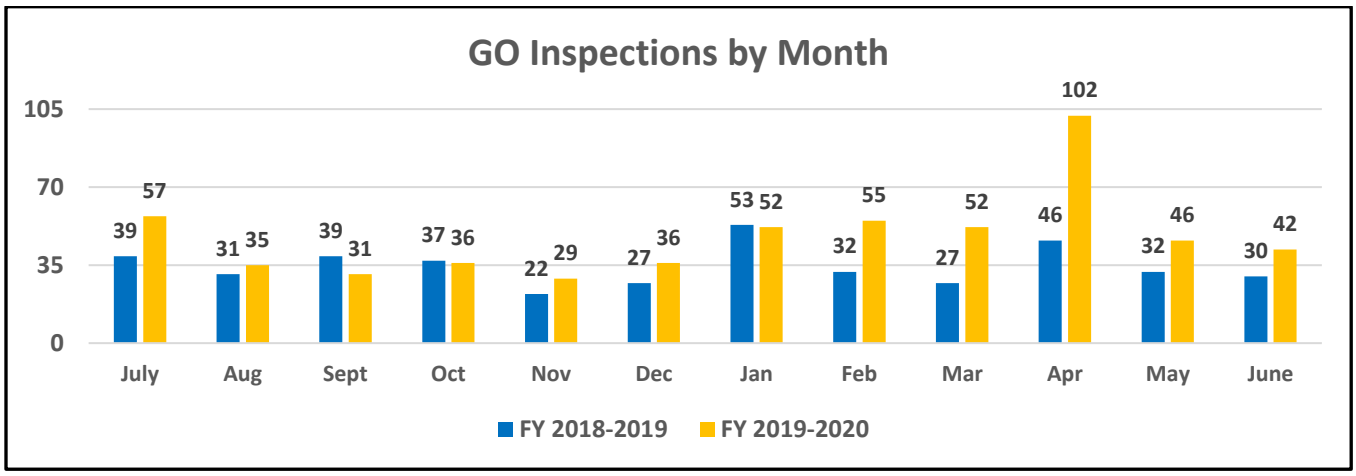
The General Order Training Program (GOTP) was initiated in 2016 to improve the understanding by RSD inspectors of CPUC's railroad's safety GOs and a related Pub. Util. Code section. Prior to this program, the training of newly hired inspectors regarding the requirements of these Orders and the Code happened on an ad hoc basis. Experienced inspectors would point out nonconformances with these provisions to new inspectors, with little standardization and with mixed results, in part because of the different backgrounds and levels of knowledge of even experienced inspectors.

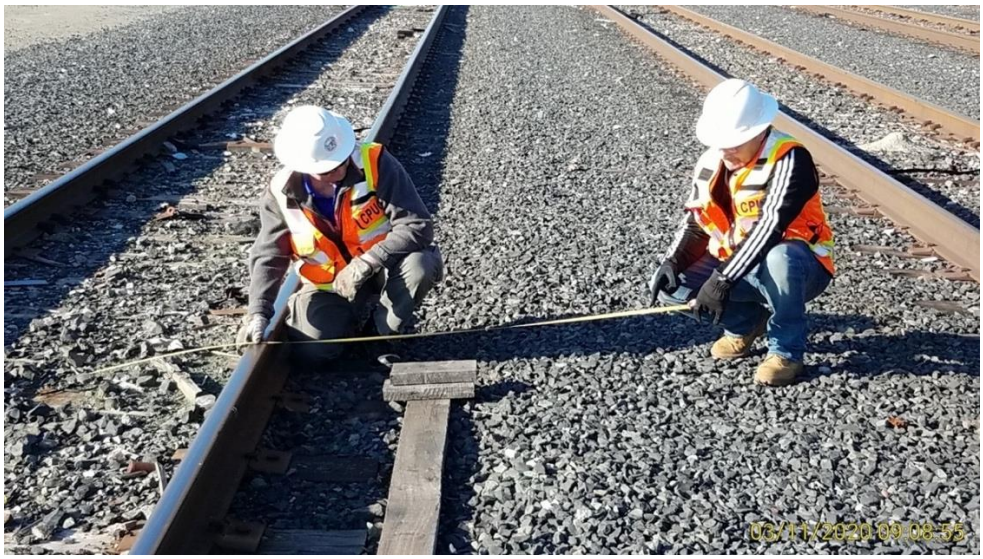
RSD inspector documenting defective walkway conditions (GO 118-A)

Each of ROSB's four Regions has two presenters, who are responsible for training their Region's inspectors and for giving presentations to railroads and businesses requesting information on the State's General Orders. Although railroads and businesses are given condensed presentations of the General Orders, these are not formal training sessions. They help clarify the application of the General Orders for a specific project or need. Railroads are required to provide their employees with the actual training.

By helping them to detect non-compliances with General Orders, the training given to ROSB inspectors and to railroad company personnel reduces the risks of railroad accidents and injuries.

In FY 2019-2020, 9 GO classes were held, and 41 inspectors were trained. In part due to this training, there was a 44% increase in the number of violations of GO provisions detected by ROSB inspectors in this fiscal year, compared with the previous fiscal year. Also, presentations on GO 118-A and 26-D were given to BNSF, the Modesto & Empire Traction Company, and UPRR.





New RSD inspectors-in-training checking for GO 118-A compliance

III. Mandated Rail Safety Inspections and Investigations

A. Inspection Process

RSD inspectors perform investigative and surveillance activities to detect instances of non-compliance (commonly called "defects" in FRA and RSD railroad safety-related documents) with both federal and state railroad safety laws and regulations.

Federal: To enforce federal regulations, RSD inspectors operate under the CPUC's Safety Participation Program agreement with the FRA (49 CFR Part 212).

State: The primary California railroad safety laws and regulations enforced by RSD inspectors are several the CPUC General Orders and Pub. Util. Code sections. A list of these laws and regulations is contained in Appendix A. The GOs most frequently cited by ROSB are 26-D (Regulations Governing Clearances on Railroads and Street Railroads With Reference to Side and Overhead Structures, Parallel Tracks, Crossings of Public Roads, Highways and Streets), and 118-A (Regulations Governing the Construction, Reconstruction, and Maintenance of Walkways Adjacent to Railroad Trackage and the Control of Vegetation Adjacent Thereto).

Among other provisions, GO 26-D establishes minimum standards for overhead and side clearances (i.e., distances) between freight cars and other equipment on railroad tracks on the one hand, and nearby objects on the other, such as switch boxes, signals, parallel tracks, and other rail apparatus; platforms, overhead roads, bridges, buildings, and other structures; and other types of potential obstructions. These standards are necessary to prevent contact between trains and obstructions which could damage both, and in particular, to prevent train personnel riding on the sides or tops of trains from being hit by such objects and becoming injured or killed.

> The primary federal rail safety regulations are contained in 49 CFR Chapter II, Federal Railroad Administration, Department of Transportation. These regulations include the following Parts: 213 (Track Safety Standards), 214 (Railroad Workplace Safety), 215 (Railroad Freight Car Safety Standards), 231 (Railroad Safety Appliance Standards), 218 (Railroad Operating Practices), 232 (Brake System Safety Standards for Freight and Other Non-Passenger Trains and Equipment; End-Of-Train Devices), 234 (Grade Crossing System Safety), and 236 (Rules, Standards, and Instructions Governing the Installation, Inspection, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances). Hazardous Materials inspectors also enforce regulations contained in 49 CFR Chapter I, Subchapter C, Hazardous Materials Regulations, including Parts 172 (Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans), 173 (Shippers - General Requirements for Shipments and Packaging), 174 (Carriage by Rail), 178 (Specifications for Packaging), and 179 (Specifications for Tank Cars).

Among other provisions, GO 118-A requires railroad corporations to provide reasonably safe and adequate walkways adjacent to their tracks in all switching areas, and sets standards for walkway slopes and ballasting. These standards are necessary to prevent persons from tripping and falling on uneven walkways, especially in the path of moving heavy equipment, possibly causing injury or death.

Hazardous materials inspectors also apply GO 161 (Rules and Regulations Governing the Transportation of Hazardous Materials by Rail).

For non-compliances with federal regulations, the RSD inspector may recommend that FRA issue a violation to the railroad, with an accompanying civil penalty. The FRA Chief Counsel reviews the recommendation and determines whether FRA will issue a violation and the amount of the civil penalty, if any, to be assessed.[12]

B. Regular Inspections

Following are statistics on the number and results of regular inspections performed by RSD inspectors during FY 2019-2020. Examples of regular inspections are presented in Appendix D.

Total inspections

RSD inspectors:

- Performed 4,358 inspections and follow-up inspections to monitor the railroads' compliance with federal and state laws, and CPUC GOs.
- Performed 192 safety surveys (bridge and tunnel).
- Cited 11,839 federal regulation defects.
- Recommended civil penalties for 397 violations of federal regulations.
- Completed 575 CPUC GO reports that identified 1,578 state regulation defects.[13]

[12] There is a wide range of financial penalties for violations of applicable federal railroad safety regulations, depending on which regulation is violated and whether the violation is ruled as "willful." A penalty may be assessed against an individual only for a willful violation. The final penalty amount depends on the resolution of a claims conference between the railroad and the FRA. Penalties for violations of hazardous materials-related regulations potentially are much higher. For more information: https://railroads.dot.gov/legislation-regulations/civil-penalties-schedules-guidelines

[13] Non-conformances with FRA regulations ("federal regulation defects") can only be reported by inspectors certified in the applicable railroad discipline in which the defects occur (e.g., track defects are reported by track inspectors). Accordingly, the numbers of federal defects are disaggregated by discipline in the following discussion. However, inspectors from any of the five railroad disciplines can identify GO defects, and these defects are not disaggregated by discipline in the discussion.

RSD Hazardous Materials inspectors:

RSD inspectors checking for securement of tank car containing hazardous material

- Inspected or evaluated 35,658 units[14] in 1,119 FRA inspection reports.
- Identified 2,010 federal regulation defects.
- Recommended 20 violations for civil penalties for federal defects identified during regular inspection activity.

Hazardous materials units include each tank car, each record to ensure accurate documentation of the substance contained in a hazardous materials rail car or package, each evaluation of a hazardous materials unintended release mitigation plan, each inspection of the shipper's paperwork, and other similar items.

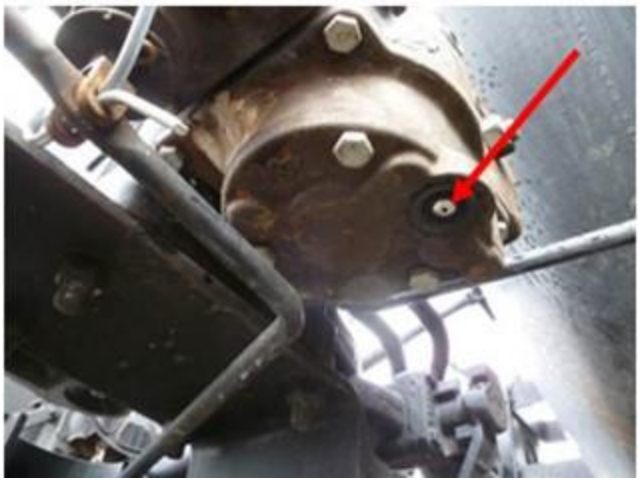
RSD hazardous materials inspectors conduct a variety of activities, including the investigation of accidents involving the actual or threatened release of hazardous materials as reported by the Governor's Office of Emergency Services 24-hour Warning Center. Inspectors also conduct unannounced inspections at the facilities of shippers, consignees, freight forwarders, intermodal transportation companies, and railroads.

RSD hazardous materials inspectors also inspect facilities to ensure compliance with CPUC GO 161, Rules and Regulations Governing the Transportation of Hazardous Materials by Rail. Inspectors look for the appropriate grounding of cars to prevent dangerous static electricity buildup during unloading. GO 161 also has requirements for reporting the release or threatened release of hazardous materials where there is a reasonable belief that the release poses a significant present or potential harm to persons, property, or the environment.

RSD Motive Power and Equipment (MP&E) inspectors:

[14] A unit is a metric used to measure the activities of RSD inspectors. Units can be physical objects like locomotives, signal systems, and paper and electronic records generated by railroad companies; or actions performed by railroad personnel, such as switching operations. These are inspected or otherwise evaluated by inspectors for compliance with applicable regulations and railroad operating rules.

RSD Mechanical inspector checking for the bottom source of a leak in a train's air brake



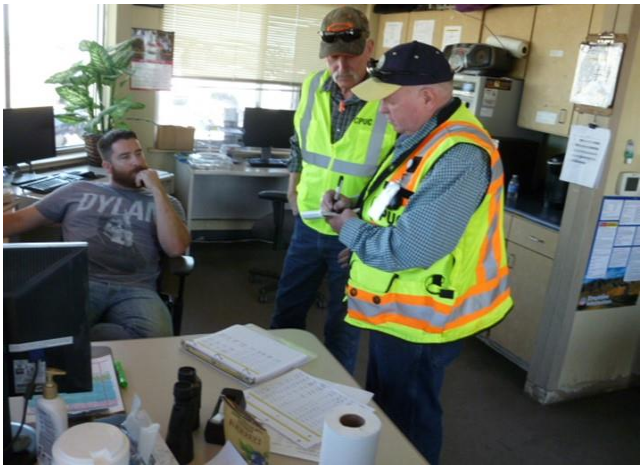
The leak was caused by a pinhole at right of the air valve

- Inspected or evaluated 60,591 units in 790 FRA inspection reports.
- Identified 3,371 federal regulation defects.
- Recommended 245 violations for civil penalties for federal regulation defects identified during regular inspection activity.

MP&E units include each locomotive, each rail car, inspection records or specific components thereof. Pub. Util. Code Section 765.5(d) requires CPUC to establish, by regulation, a minimum inspection standard to ensure that at the time of inspection, that railroad locomotives, equipment, and facilities located in the Class I railroad yards will be inspected not less frequently than every 120 days (three times per year).[15]

[15] UPRR and BNSF are the only Class I freight railroads operating in California. The Surface Transportation Board defines a Class I railroad as "having annual carrier operating revenues of $250 million or more" after making an adjustment using a formula based on the Railroad Freight Price Index developed by the Bureau of Labor Statistics. (49 CFR Part 1201 Subpart A).

RSD Operating Practices (OP) inspectors:



RSD inspectors discussing required movement records at a train yard switching office

- Inspected or evaluated 10,242 units in 810 FRA inspection reports.
- Identified 1,189 federal regulation defects.
- Recommended 77 violations for civil penalties for federal regulation defects identified during regular inspection activity.

Operating Practices activities include ensuring the accuracy of train consist (train make up) records, observing crews performing switching operations, reviewing the accuracy and completeness of accident records, ensuring compliance with certifications and licenses, and other similar items.

During FY 2019-2020, RSD did not satisfy the mandate. Of the 66 facilities, 61 sites were inspected three times or more during the fiscal year. Of the remaining 5 facilities, all were inspected at least once. Facilities that have greater numbers of train traffic are inspected more often than those with lesser train traffic.

The primary reasons for not meeting the mandate were due to the COVID-19 pandemic and the extended vacancies. During that period, RSD's ability to meet the mandate was hampered due to the inability of inspectors to maintain social distancing from railroad employees while inspecting repair shops, as well as a requirement to avoid contact with certain railroad equipment.

Extended vacancies and the difficulties associated with identifying and recruiting well-qualified and experienced candidates were another cause for the delay. When a certified RSD inspector leaves, it takes at least one year to hire a new inspector, get the inspector appropriate training for federal certification, and train the inspector in the field using an experienced RSD inspector. During that period, RSD's ability to meet the mandate is reduced. In addition, the experienced inspectors may miss their individually assigned mandate segments because they spend a significant amount of time training new hires on California-specific laws and CPUC GOs.

RSD Signal and Train Control inspectors:

RSD and FRA Signal inspectors along with railroad company personnel conducting an inspection of a mainline power switch

- Inspected or evaluated 2,662 units in 337 FRA inspection reports.
- Identified 751 federal regulation defects.
- Recommended 3 violations for civil penalties for federal regulation defects identified during regular inspection activity.

Signal and Train Control units include each signal system structure, maintenance and testing records, warning devices at crossings, and other electronic or mechanical signaling systems.

RSD Track inspectors:

Track inspector conducting an inspection of the tracks at the ACE Facility in Stockton

- Inspected or evaluated 16,706 units in 1,216 FRA inspection reports.
- Identified 4,315 federal regulation defects.
- Recommended 51 violations for civil penalties for federal regulation defects found during regular inspection activity.

Track units include a mile of track, a switch, a Roadway Maintenance Machine, a record, and other similar items involving the track structure.

> Pub. Util. Code Section 765.5(d) requires CPUC to establish by regulation a minimum inspection standard to ensure that all branch and main line track is inspected not less frequently than every 12 months.

Inspectors use several methods to inspect track. Each method has its benefits and drawbacks depending on the terrain, steepness, and location.[16]

The methods include:

- Physically walking the track.
- Riding in a hi-rail vehicle (motor vehicle outfitted with steel rail guide wheels).

[16] The 2013-14 Annual Report to the Legislature provides a detailed explanation about the methods of track inspections: http://www.cpuc.ca.gov/rosb/

- Riding in an FRA or railroad owned geometry car (a passenger coach equipped to identify geometric track deficiencies that create accident risks).

In FY 2019-2020, RSD inspectors surveyed 4,901 miles of track aboard hi-rail trucks and track geometry inspection vehicles. The inspections identified 1,142 defective conditions. RSD inspectors conducted numerous follow-up inspections to monitor the railroads' compliance and verify that the defects had been corrected. However, this mandate was not met due to the COVID-19 pandemic and RSD's inability to maintain social distancing while riding in vehicles.

C. Focused Inspections

A focused inspection is an inspection that may concentrate on a specific discipline's regulations and/or a specific location or theme. These inspections target railroad yards and track that pose increased safety risks, based on inspection data, accident history, and rail traffic density. Focused inspections involve inspectors from a variety of disciplines or multiple inspectors from a single discipline, working together at a specific location or rail facility. Typically, focused inspections are joint efforts between the FRA and RSD, although Pub. Util. Code Section 767.5 permits the CPUC to conduct the inspections as the CPUC determines to be necessary.

Pub. Util. Code Section 765.5(e) requires CPUC to conduct focused inspections of railroad yards and track.

Focused inspections allow RSD inspectors to evaluate all aspects of a railroad or railroad facility's operational and maintenance practices and procedures. This includes evaluation of railroad personnel's technical expertise and experience, and organizational safety culture. If corrective actions are recommended by RSD inspectors, a follow-up inspection is performed to determine progress by the railroad entity in carrying out the recommended actions. An example of a focused inspection is shown in Appendix E.

RSD inspectors receive a safety briefing from an RSD Track inspector, discussing the hazards of working around actively used track before starting a focused inspection

In FY 2019-2020, RSD inspectors performed 20 focused inspections, which consisted of:

- 5 track inspections.
- 1 hazardous materials inspection.
- 2 operating practices inspections.
- 2 signal and train control inspections.
- 5 mechanical inspections.
- 5 cross-discipline inspections.

D. Accident Investigations

RSD inspectors evaluate each accident when reported to the CPUC, usually by Cal OES, and determine the appropriate investigative response based on accident severity criteria, including:

- Impact to the public (evacuations, injuries, fatalities).
- Injuries or fatalities to railroad employees or passengers.
- Environmental impact.
- Impact on commercial transportation (highway closures, commuter interruptions).
- Violations of state or federal railroad safety regulations or operating rules.

Pub. Util. Code Section 315 requires CPUC to investigate the cause of all accidents occurring within the state upon the property of any public utility directly or indirectly connected with its maintenance or operation, resulting in loss of life or injury to person or property damage.

In FY 2019-2020, there were 764 reported railroad-related incidents in California, down from 885 in the previous fiscal year. Each incident falls into one or more categories: 377 were related to crossing or trespasser incidents, 228 were materials spills, 143 were derailments, and 16 were in other categories. These incidents resulted in a total of 195 fatalities and 104 injuries (compared to 67 and 112 in the previous year, respectively), mostly to trespassers and road users. RSD supervisors determined that 177 incidents required further investigation. Appendix F describes an example of a major accident investigation performed by RSD inspectors.

E. Security Inspections

Among other provisions, the Local Community Rail Security Act of 2006, Pub. Util. Code Sections 7665 through 7667, requires that every operator of rail facilities in the state implement an infrastructure protection program to protect rail infrastructure in the state from acts of sabotage, terrorism, or other crimes.

The infrastructure protection program is to be updated by the rail operator at least once every year, and the updated plan submitted to CPUC. Also, the operators are to provide CPUC with a risk assessment

incorporating a broad range of risk-related information. RSD reviews the programs, and it may conduct inspections to facilitate the reviews and order rail operators to improve, modify, or change their programs to comply with the Act.

In FY 2019-2020, RSD inspectors performed security inspections on 36 of the 37 railroads that operate in California. All railroads inspected followed relevant state railroad security-related laws. Amtrak, UPRR, and BNSF railroads have national security plans that are reviewed annually by the FRA. RSD inspectors reviewed each railroad's security plan at various locations within the state. However, due to COVID-19-related travel and physical distancing restrictions, several of the security reviews were conducted by phone or via Webex conferences. These railroads are identified in the chart below.

Following is a table identifying the railroad, inspection date, and compliance status.

RAILROAD	DATE OF INSPECTION	COMPLIANT	COMMENTS
Altamont Commuter Express	01/16/20	Y	
Amtrak Los Angeles	02/18/20	Y	
Amtrak Oakland	02/18/20	Y	
Baja California Railroad	05/28/20	Y	Conducted through Webex
BNSF	06/23/20	Y	Conducted through Webex
Cal Train	02/20/20	Y	
California Northern Railroad	02/12/20	Y	
Central California Traction Company	01/16/20	Y	
Fillmore Western	05/12/20	Y	Conducted by phone interview
Goose Lake Railway	05/12/20	Y	Conducted by phone interview
Los Angeles Junction Railroad	06/23/20	Y	Conducted through Webex
Metrolink	05/29/20	Y	Conducted through Webex
Modesto & Empire Traction	01/15/20	Y	
Napa Valley Railroad	02/15/20	Y	
Niles Canyon Railway	02/20/20	Y	
North County Transit District	06/03/20	Y	Conducted through Webex

Northwestern Pacific Railroad Company	02/14/20	Y	
Oakland Global Rail Enterprise	02/17/20	Y	
Pacific Harbor Lines	02/13/20	Y	
Pacific Southwest Railway Museum	05/28/20	Y	Conducted by phone interview
Pacific Sun Railroad	05/26/20	Y	Conducted through Webex
Quincy Railroad	05/12/20	Y	Conducted by phone interview
Richmond Pacific Railroad	02/18/20	Y	
Sacramento Valley Railroad	02/14/20	Y	
San Diego & Imperial Valley	05/28/20	Y	Conducted through Webex
San Francisco Bay Railroad	02/17/20	Y	
San Joaquin Valley RR	05/15/20	Y	Conducted by phone interview
Santa Cruz &Big Trees	02/20/20	Y	
Santa Cruz Monterey Bay	02/21/20	Y	
Santa Maria Valley RR	08/06/20*	Y	*Late review. Railroad representative unavailable, due to COVID-19. Conducted through Webex
Sierra Northern Railroad	02/12/20	Y	
So. Cal Ramp Services	05/27/20	Y	Conducted through Webex
Stockton Terminal & Eastern Railroad	07/05/20	Y	Conducted by phone interview
Trona Railway Company	04/15/20	Y	
UPRR	06/17/20	Y	Conducted by phone interview. Note: security manager is located in Omaha NE.
Ventura County Railroad	05/28/20	Y	
West Isle Line	01/17/20	Y	

IV. Investigations of Runaway Trains and Other Uncontrolled Train Movements

Pub. Util. Code Section 916.1 requires CPUC to annually report the results of its investigations of runaway trains or other uncontrolled train movements that threaten public health and safety, as per Section 7661. Similarly, Pub. Util. Code Section 7711.1 requires CPUC to collect and analyze near-miss data for incidents in California occurring at railroad crossings and along the railroad rights-of-way. Section 7711.1 states "For purposes of this section, "near-miss" includes a runaway train or any other uncontrolled train movement that threatens public health and safety reported to the Commission pursuant to Section 7661."[17]

In FY 2019-2020, RSD investigated five instances of uncontrolled train movements. In one of these incidents, an uncontrolled movement resulted in the separation of several cars from the rest of an occupied Amtrak train. While there were no injuries or fatalities and no releases of hazardous materials, this event is included in Appendix G as an uncontrolled movement that threatened public health and safety.

[17] Pub. Util. Code Section 7661 requires such uncontrolled movements to be reported to the California Governor's Office of Emergency Services, which in turn notifies CPUC.

V. Derailment and Local Safety Hazard Sites

Pub. Util. Code section 916.2 requires the CPUC to report to the Legislature on sites on railroad lines in the state it finds to be hazardous. The sites on railroad lines the CPUC identified as hazardous were identified in 1997 in a formal Commission Decision, D.97-09-045, and were termed Local Safety Hazard Sites (LSHSs). Two methods to determine sites were used: 1) sites determined by a statistically significant higher derailment rate than elsewhere on the line, and 2) sites determined by the operating railroad to require stricter operating practices than elsewhere on the line.

Section 916.2 also requires the CPUC to include a list of all railroad derailment accident sites in the state on which accidents have occurred within at least the previous five years, describe the nature and probable causes of the accidents, and indicate whether the accidents occurred at or near sites that the CPUC on has determined to be hazardous.

The list of derailments is located on the CPUC's website at http://www.cpuc.ca.gov/rosb/,

Table 1 lists the accidents that have occurred "at or near" an identified local safety hazard site within the previous five years pursuant to Pub, Util. Code subsection 916.2(a). The original analysis identifying these sites was based on the higher risk main line and siding accidents.

Table 1—List of Local Safety Hazard Sites

*LSHS #	CURRENT LSHS TRACK LINE	PREVIOUS LSHS TRACK LINE AT TIME OF D.97-09-045[18]	RR MILEPOST	NUMBER OF DERAILMENTS 2015-19	OVERLAP WITH SITE #**
16	UPRR Mojave Subdivision	SP Bakersfield Line	335.0 to 359.9	12	
9	UPRR Black Butte Subdivision	SP Shasta Line	322.1 to 332.6	3	#10
10	UPRR Black Butte Subdivision	SP Shasta Line	322.1 to 338.5	1	#9
19	UPRR Mojave Subdivision	SP Bakersfield Line	463.0 to 486	0	
12	UPRR Roseville Subdivision	SP Roseville District	150.0 to 160.0	0	
6	UPRR Yuma Subdivision	SP Yuma Line	542.6 to 589.0	0	#3, #4
22	UPRR Canyon Subdivision	UP Feather River Division	234.0 to 240.0	0	#25
25	UPRR Canyon Subdivision	UP Feather River Division	232.1 to 319.2	0	#22, #23

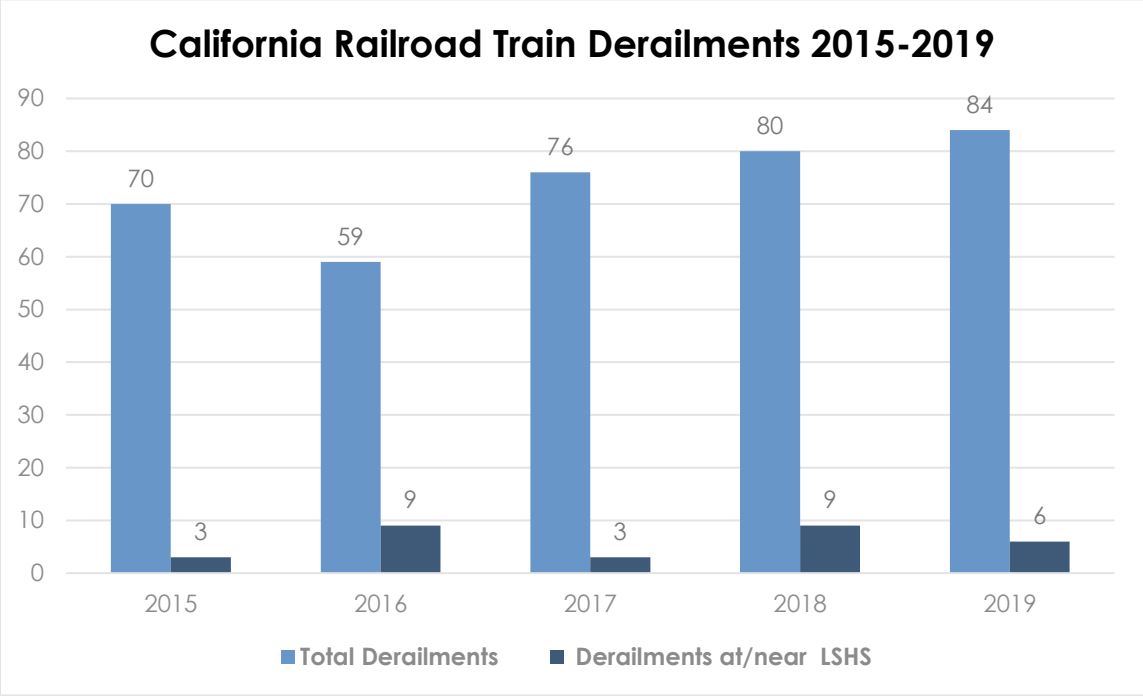
[18] In 1996, UPRR purchased Southern Pacific Railroad.

3	UPRR Yuma Subdivision	SP Yuma Line	535.0 to 545.0	3	#6
23	UPRR Canyon Subdivision	UP Feather River Division	253.0 to 282.0	2	#25
4	UPRR Yuma Subdivision	SP Yuma Line	586.0 to 592.0	0	#6
26	BNSF Gateway Subdivision	UP Bieber Line,	15.0 to 25.0	0	
31	BNSF San Diego Subdivision	ATSF San Diego	249.0 to 253.0	0	
1	UPRR Coast Subdivision	SP Coast Line	235.0 to 249.0	0	
7	Central Oregon and Pacific Railroad Siskiyou Subdivision	SP Siskiyou Line	393.1 to 403.2	0	
27	UPRR L.A. Subdivision, Cima Grade		236.5 to 254.6	0	
28	BNSF Cajon Subdivision	ATSF Cajon	53.0 to 68.0	0	
29	BNSF Cajon Subdivision	ATSF Cajon	81.0 to 81.5	0	
30	BNSF Cajon Subdivision	ATSF Cajon	55.9 to 81.5	0	

* The LSHS number (LSHS #) is for identification purposes only and does not indicate any ranking.

** The two methods of determining LSHSs described earlier sometimes produce different site boundaries. Where a site's boundaries identified by one method overlap with another site identified by the different method, the other site is listed in this column.

Within the previous five calendar years, California experienced 369 derailments. Of that total, 30 derailments, or nearly 8.1 percent, occurred at or near local safety hazard sites. For this report, "at or near" includes any location of railroad track along the railroad right-of-way that is contained in the segment of railroad designated to be a local safety hazard site, including the distance of track one mile on each side of the local safety hazard site. Maps of local safety hazard sites are included in Appendix H.



Source: Federal Railroad Administration, Office of Safety Analysis:
Total derailments: Table 1.12, Ten Year Accident/Incident Overview
Total derailments at /near LSHS: Table 3.11, Accident Detail Report, as calculated by RSD staff

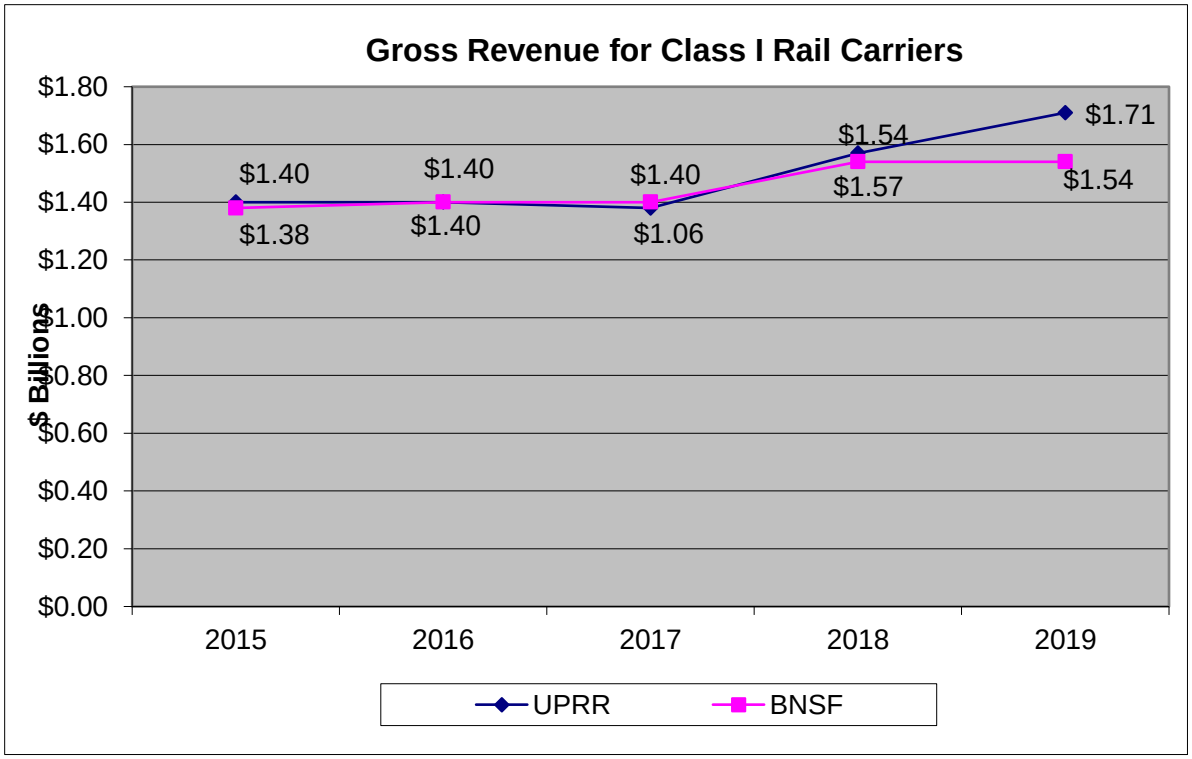
VI. Regulatory Fee Impact on Competition

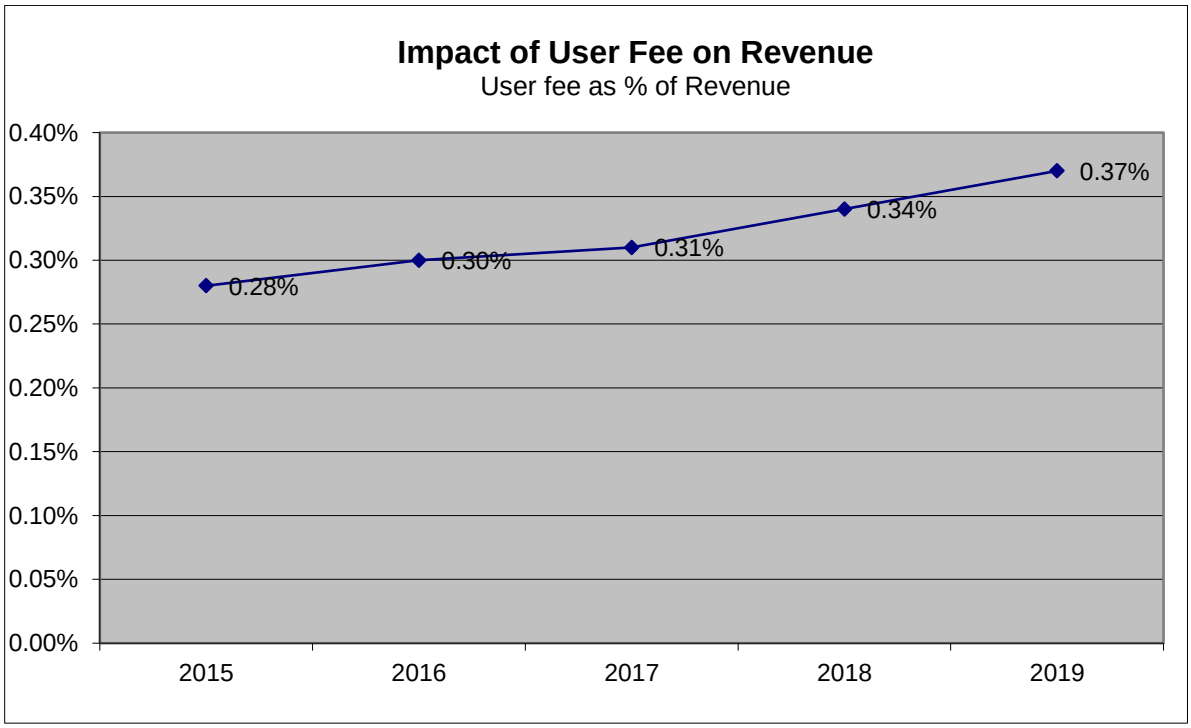
Pub. Util. Code Section 309.7 requires the activities of CPUC that relate to safe operation of common carriers by railroad, other than those relating to grade crossing protection, to be supported by the fees paid by railroad corporations.

In FY 2019-2020, the Legislature appropriated $12.2 million from the CPUC Transportation Reimbursement Account. The fees paid by the railroad corporations are deposited into a dedicated subaccount within the CPUC Transportation Reimbursement Account and are the sole funding source for the ROSB program. The fees do not fund any other CPUC programs.

Pub. Util, Code Section 916.3 requires CPUC to report annually on the impact on competition, if any, of the regulatory fees assessed railroad corporations for the support of CPUC's activities.

The railroad user fees assessed in FY 2019-2020 on UPRR and BNSF constituted 0.37 percent of combined revenues and were unlikely to have had any effect on competition. The following two graphs show the percentage of user fees versus railroad revenue last year.





Source: the railroads report their revenues to CPUC annually to determine the user fee that funds ROSB

VII. Challenges for Rail Safety

A. Trespassing on Railroad Property by Homeless Individuals

A railroad-related trespasser is considered to be any person who enters or remains upon an area on railroad property that he or she is not authorized to access, including railroad equipment, or in railroad facilities near railroad equipment and on railroad rights-of-way (ROWs).[19] Trespassing along railroad ROWs and within railroad infrastructure such as yards is the leading cause of rail-related deaths in America. Hundreds of people die each year in the U.S. from rail-related trespassing accidents, and additional hundreds are injured. Over the ten-calendar year period 2010-2019, 4,675 trespassers were killed and 4,438 were injured. In California alone, 880 trespassers were killed and 657 were injured during this period.[20]

Apart from the trauma to victims and their family and friends, railroad personnel witnessing these incidents or who must deal with the dead and injured victims experience emotional distress that sometimes can be significant and long-lasting. Also, when trains have to stop for hours while accidents are investigated, freight and passenger service are interrupted on that track and possibly on other nearby track, causing lost revenue and other economic costs. Costs are created even when railroads have to run more slowly to avoid trespassers and debris left on or near tracks by trespassers. Another category of costs is damage to railroad infrastructure caused by trespassers, such as vandalism to signage and fencing.

Trespassing by Homeless Individuals

Trespassing by homeless people is a particularly difficult problem. Many locations in California near railroad tracks have been occupied by homeless individuals and encampments. Compared with other areas, these sites often offer the homeless greater concealment and less likelihood of intervention from local authorities. As a result, trespassing on railroad ROWs by homeless people has become a frequent occurrence. In addition, homeless tents and other structures, possessions, and debris frequently are placed in unsafe proximity to railroad tracks.

While data are lacking on what percentage of trespassers killed or injured by railroad operations are homeless, some trespassing casualties have been identified in police reports and news media as transients or persons without fixed addresses, and railroad personnel have stated to RSD staff that many of the trespassers struck or nearly struck by trains appeared to be homeless. Some casualties were the result of suicide attempts.

Apart from the risks to homeless people from trespassing, homeless encampments often create unsafe work environments for railroad and agency personnel due to biological hazards (e.g., feces and syringes), vicious dogs, rats and other vermin attracted to discarded food and other materials, and miscellaneous criminal

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19 Kathryn Stanchak and Marco DaSilva, "Trespass Event Risk Factors," U.S. Department of Transportation, Federal Railroad Administration, DOT-VNTSC-FRA-14-03, November 2014, p. 5.

20 U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, Ten Year Accident/Incident Overview by Calendar Year (Table 1.12), https://safetydata.fra.dot.gov/officeofsafety/default.aspx

activities, including assaults on railroad and agency personnel. Among other problems, this impedes the inspections of train equipment and tracks necessary for safe operations.

Fires from homeless encampments have spread to surrounding vegetation and other flammable materials. Underpasses beneath railroad bridges often are occupied by homeless individuals seeking shelter from the elements, and some wooden bridges have caught fire as a result of homeless people setting up campfires to warm themselves, cook food, etc. Even concrete structures can be degraded by fires. Also, structures can lose stability, especially during rainstorms, when homeless people dig holes in the supporting dirt underneath.

Train schedules can be severely impacted by issues related to homelessness. If they can do so, train operators slow down or stop when they see trespassers or obstructions on or near tracks. If the trains cannot slow or stop in time and if trespassers are struck, trains must stop and wait for emergency responders to arrive and assist at the scene. Similarly, fires on or near tracks caused by homeless activities may cause disruptions to service.

Both railroad law enforcement personnel and local law enforcement often do not have the resources to effectively police railroad properties. It is particularly difficult to prevent trespassing and detain offenders in remote areas, but in all regions, police and prosecutorial resources frequently are diverted to more pressing law enforcement needs. Some jurisdictions have almost entirely stopped prosecuting trespassing cases involving homeless people on railroad ROWs.

Lastly, even after eviction from locations near tracks, unless effective barriers are erected, there is little to prevent the same people or others from reoccupying these sites or from occupying similar sites along the same track.

While RSD cannot compel homeless people to vacate railroad ROWs or create shelter for displaced individuals, it has the regulatory authority to enforce measures that can reduce some safety issues created by this situation. The disposal of waste materials or other disturbances of walkways can create tripping hazards in the vicinity of railroad ROWs. This would cause violations of GO 118-A, which sets standards for walkway surfaces alongside railroad tracks. As stated by that GO, "The Commission, after hearing, may order the railroad corporation to eliminate any unsafe walkway condition and may specify such reasonable time within which the improvement shall be completed as may be appropriate under the circumstances."

Similarly, tents, wooden structures, and miscellaneous debris in homeless encampments can create violations of the CPUC's GO 26-D, which sets clearance standards between railroad tracks, and structures and obstructions adjacent to tracks. The GO states that "no railroad or street railroad corporation shall operate any cars, trains, motors, engines, or other rolling equipment over its own or other tracks, except as hereinafter provided, on which overhead or side clearances, or clearances between tracks, are less than the minimum herein prescribed…"

These GOs cover only a small portion of the railroad safety issues presented by homelessness near railroad properties. RSD staff have met with local governmental officials and railroad company personnel to discuss ways of addressing these issues.

Examples of this effort are provided in Appendix I.

B. Waivers of FRA Rail Safety Regulations

The relaxation of FRA regulatory requirements has increased the importance of CPUC's railroad safety program.[21] Due to the COVID-19 pandemic, the FRA has waived a wide array of rail safety regulations.

On March 13, 2020, noting the President's declaration of a national emergency related to COVID-19 and the World Health Organization's (WHO) characterization of COVID-19 as pandemic, FRA Administrator Ronald L. Batory activated the emergency relief docket (ERD) (Docket No. FRA-2020-0002). Activation of the ERD enables FRA to utilize its emergency waiver procedures found at 49 CFR § 211.45. Under that section, once the Administrator activates the ERD, FRA may grant a petition for waiver without prior notice and comment if the Administrator determines it is in the public interest, the waiver is not inconsistent with railroad safety, and the waiver is necessary to address an actual or impending emergency situation or event. See 49 CFR § 211.45(j).[22]

Via this process, FRA considered a petition from several organizations representing freight and passenger railroad operators (Association of American Railroads (AAR), the American Short Line and Regional Railroad Association (ASLRRA), and the American Public Transportation Association (APTA)) requesting temporary emergency relief from certain requirements of FRA's rail safety regulations.

In support of this petition, the railroads asserted, among other things, that railroads expect their staffing levels to be significantly reduced as fewer railroad employees and contractors will be available to perform necessary duties due to illness and the need to quarantine and request relief from certain FRA safety requirements in the event the COVID-19 pandemic causes workforce shortages or other constraints that prevent individual railroads from timely completing all Federally-mandated railroad safety tests and inspections, and complying with other requirements related to employee training and qualification.[23]

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21 Accident data are insufficient at the present time to determine whether this FRA action has negatively affected railroad safety. A complicating factor is that freight tonnage and passenger train service have decreased during this same time, due to the negative economic impacts caused by the pandemic.

22 Email, Karl Alexy, FRA Associate Administrator for Rail Safety, Chief Safety Officer, to representatives of the Association of American Railroads, the American Short Line and Regional Railroad Association, and the American Public Transportation Association, March 25, 2020.

23 Ibid.

FRA granted the requested relief, subject to certain conditions, ruling that this action was in the public interest, necessary to address the current nationwide emergency situation involving the COVID-19 pandemic, and is not inconsistent with railroad safety.[24]

The waiver is subject to several general conditions:

- The existence of workforce shortages, which are to be documented by the railroads concerned.
- Weekly documentation of various location- and date-specific information relevant to the waiver(s) utilized.

Additional conditions were identified for each specific 49 CFR section at issue.

As an example of how regulatory requirements have been relaxed by this waiver, changes affecting "Track Inspections" (49 CFR 213) included the following:

1. As promulgated:

49 CFR 213.233(c) Each track inspection shall be made in accordance with the following schedule—

CLASS OF TRACK	TYPE OF TRACK	REQUIRED FREQUENCY
Excepted track and Class 1, 2, and 3 track	Main track and sidings	Weekly with at least 3 calendar days interval between inspections, or before use, if the track is used less than once a week, or twice weekly with at least 1 calendar day interval between inspections, if the track carries passenger trains or more than 10 million gross tons of traffic during the preceding calendar year.
Excepted track and Class 1, 2, and 3 track	Other than main track and sidings	Monthly with at least 20 calendar days interval between inspections.
Class 4 and 5 track		Twice weekly with at least 1 calendar day interval between inspections.

[24] The 49 CFR Parts covered by the FRA decision, as described by FRA, are: 213 (track inspection), 214 (operational tests and inspections of employees), 217 (operational tests and inspections of employees), 218 (operational tests and inspections of employees), 219, 220 (operational tests and inspections of employees), 228 (quick tie-up procedures), 229 (locomotive maintenance and inspection requirements), 232 (various mechanical requirements), 234 (time-interval-dependent inspection and testing requirements), 236 (operational tests and inspections of employees; time-interval-dependent inspection and testing requirements), 239 (operational tests and inspections of employees), 240 (operational tests and inspections of employees; engineer and conductor certifications, other qualifications; further waiver granted by FRA dated April 10, 202024), and 242 (operational tests and inspections of employees; engineer and conductor certifications, other qualifications).

2. As modified by FRA (March 25, 2020):

When no qualified track inspector or qualified contractor and/or manager as defined in §213.7 is available, the following table replaces the § 213.233(c) table, which defines the required track inspection schedule:

CLASS OF TRACK	TYPE OF TRACK	REQUIRED FREQUENCY
Excepted track and Class 1, 2, and 3 track	Main track and sidings	Weekly with at least a five (5) calendar day interval between inspections, if the track carries passenger trains or more than 10 million gross tons of traffic during the preceding calendar year.
Excepted track and Class 1, 2, and 3 track	Other than main track and sidings	Every six (6) weeks with at least a 20 calendar day interval between inspections.
Class 4 and 5 track		Weekly with at least a five (5) calendar day interval between inspections.

In response, RSD management has increased the surveillance and inspection activities carried out by its inspectors, which assess whether railroad field and maintenance operations comply with federal and state regulations. This includes increasing the frequency of unannounced inspections.

This enhanced regulatory activity aids in detecting inappropriate applications of the relaxed FRA regulations and allows RSD inspection staff to intervene before problems in any of the five railroad disciplines increase the likelihood of an accident.

C. RSD COVID-19 Safety Guidance and Personnel Protection

The COVID-19 pandemic has created new challenges for RSD in providing protection to its staff, especially when staff must interact closely with the employees of regulated railroads.

- Prior to the pandemic, some inspection and investigation work required RSD inspectors to be in confined spaces with railroad employees, such as riding in hi-rail track inspection vehicles[25] and train locomotive cabs.[26]
- Inspectors are required to review certain reports and other documents held by the railroads. These typically are held at indoor company offices and other facilities.

[25] RSD inspectors accompanying railroad personnel in hi-rail vehicles examine the effectiveness of the railroad's track inspections and observe other aspects of railroad safety, such as maintenance practices.

[26] RSD inspectors taking locomotive cab rides observe operational regulatory compliance by train crews.

To lessen possible exposures to COVID-19, RSD staff follows guidance from the Centers for Disease Control and Prevention, the Governor's Office, and other applicable governmental bodies regarding such issues as personal protective equipment (PPE) and social distancing. Inspectors are provided face masks to be used whenever they are conducting field inspections and/or investigations. They are instructed to follow the social distancing guidelines issued by the relevant authorities when interacting with railroad personnel, as well as with other CPUC employees.

RSD inspector wearing mask, measuring main line track with a level during an inspection

As there is no guarantee that the railroad personnel who meet with inspectors comply with the same safety practices, RSD has taken steps to further reduce the inspectors' contact with them:

- As much as possible, inspectors drive their vehicles unaccompanied by railroad company personnel to rail yards and other facilities, especially when these are at remote locations, and meet with such personnel at those locations as necessary. Some inspections can be accomplished on foot rather than by riding in enclosed vehicles with railroad employees.
- Locomotive cab ride inspections by RSD inspectors have been temporarily halted. To compensate, RSD inspectors have increased surveillance activities at train crew change points where freight and passenger train crews are exchanged during lengthy train routes. A crew change point is also where RSD inspectors can discuss regulatory compliance, safety issues and other concerns with railroad personnel, while maintain social distancing for everyone's protection.
- To reduce the need to examine company documents on-site, railroad officials have been asked to print out the needed documents that inspectors can review from their home offices. While inspectors must still enter some railroad facilities, the railroads must ensure that there either are no employees present or that such employees are wearing masks and keep the required distance away from the inspectors. Inspectors also limit their time of exposure to that necessary to accomplish the reviews.

Appendix A – State Railroad Safety Laws and General Orders

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
Pub. Util. Code Sec. 309.7 (a)	RSD is responsible for inspection, surveillance, and investigation of the rights-of-way, facilities, equipment, and operations of railroads and public mass transit guideways, and for enforcing state and federal laws, regulations, orders, and directives relating to transportation of persons or commodities, or both, of any nature or description by rail. RSD shall advise the Commission on all matters relating to rail safety, and shall propose to the Commission rules, regulations, orders, and other measures necessary to reduce the dangers caused by unsafe conditions on the railroads of the state.	
Pub. Util. Code Sec. 309.7 (b)	RSD shall exercise all powers of investigation granted to the Commission, including rights to enter upon land or facilities, inspect books and records, and compel testimony. RSD shall employ sufficient federally certified inspectors to ensure at the time of inspection that railroad locomotives and equipment and facilities located in class I railroad yards in California are inspected not less frequently than every 120 days, and all main and branch line tracks are inspected not less frequently than every 12 months.	GO 22-B: Requires that railroads immediately furnish the Commission notification of all train collision and derailments resulting in loss of life or injury, all bridge failures, and all highway crossing accidents resulting in loss of life or injury.
Pub. Util. Code Sec. 309.7 (c)	RSD shall, with delegated CPUC attorneys, enforce safety laws, rules, regulations, and orders, and to collect fines and penalties resulting from the violation of any safety rule or regulation.	Resolution ROSB-002 established a civil penalty citation program for enforcing compliance with safety requirements for railroad carriers
Pub. Util. Code Sec. 309.7 (d)	(d) ROSB activities shall also be supported by the fees paid by railroad corporations. The activities of the division of the Commission responsible for consumer protection and safety that related to grade crossing protection shall be supported by funds appropriated from the State Highway Account in the Public Transportation Fund.	

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
Pub. Util. Code Sec. 315	The Commission shall investigate the cause of all accidents occurring within this state upon the property of any public utility or directly or indirectly arising from or connected with its maintenance or operation, resulting in loss of life or injury to person or property and requiring, in the judgment of the Commission, investigation by it, and may make such order or recommendation with respect thereto as in its judgment seems just and reasonable.	
Pub. Util. Code Sec. 421	(a)-(g) The Commission shall annually determine a fee and is permitted to expend funds for specified purposes.	
Pub. Util. Code Sec. 761	Whenever the Commission finds that rules, practices, equipment, appliances, facilities, or service of any public utility are unjust, unreasonable, unsafe, improper, inadequate, or insufficient, the Commission shall fix the rules.	GO 27-B: Filing and posting of railroad timetables and changes.
Pub. Util. Code Sec. 765.5	(a) The purpose of this section is to provide that the Commission takes all appropriate action necessary to ensure the safe operation of railroads in this state. (b) The Commission shall dedicate sufficient resources necessary to adequately carry out the State Participation Program for the regulation of rail transportation of hazardous materials as authorized by the Hazardous Material Transportation Uniform Safety Act of 1990 (P.L. 101-615). (c) On or before July 1, 1992, the Commission shall hire a minimum of six additional rail inspectors who are or shall become federally certified, consisting of three additional motive power and equipment inspectors, two signal inspectors, and one operating practices inspector, for the purpose of enforcing compliance by railroads operating in this state with state and federal safety regulations. (d) On or before July 1, 1992, the Commission shall establish, by regulation, a minimum inspection standard to ensure, at the time of inspection, that railroad locomotives, equipment, and facilities located in class I railroad yards in California will be inspected not less frequently than every 120 days, and inspection of all branch and main line track not less frequently than every 12 months.	

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
	(e) Commencing July 1, 2008, in addition to the minimum inspections undertaken pursuant to subdivision (d), the Commission shall conduct focused inspections of railroad yards and track, either in coordination with the Federal Railroad Administration, or as the Commission determines to be necessary. The focused inspection program shall target railroad yards and track that pose the greatest safety risk, based on inspection data, accident history, and rail traffic density.	
Pub. Util. Code Sec. 768	768. The Commission may, after a hearing, require every public utility to construct, maintain, and operate its line, plant, system, equipment, apparatus, tracks, and premises in a manner so as to promote and safeguard the health and safety of its employees, passengers, customers, and the public. The Commission may prescribe, among other things, the installation, use, maintenance, and operation of appropriate safety or other devices or appliances, including interlocking and other protective devices at grade crossings or junctions and block or other systems of signaling. The Commission may establish uniform or other standards of construction and equipment and require the performance of any other act which the health or safety of its employees, passengers, customers, or the public may demand.	GO 26-D: Establishes minimum clearances between railroad tracks, parallel tracks, side clearances, overhead clearances, freight car clearances, and clearances for obstructions, motor vehicles, and warning devices to prevent injuries and fatalities to rail employees. GO 72-B: Formulates uniform standards for grade crossing construction to increase public safety. GO 75-D: Establishes uniform standards for warning devices for at-grade crossings to reduce hazards associated with persons traversing at-grade crossings. GO 118-A: Provides standards for the construction, reconstruction, and maintenance of walkways adjacent to railroad tracks to provide a safe area for train crews to work. GO 126: Establishes requirements for the contents of First-Aid kits provided by common carrier railroads.
Pub. Util. Code Sec. 916	Requires the Commission to report to the Legislature on its rail safety activities annually, on or before November 30.	
Pub. Util. Code Sec. 916.2	Requires the Commission to report to the Legislature on sites on railroad lines in the state it finds to be hazardous and list all derailment accidents sites in the state on which accidents have occurred within at least the previous five years.	

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
Pub. Util. Code Sec. 916.3	Requires the Commission to report on the actions CPUC has taken to comply with section 765.5, which requires CPUC to take all appropriate action necessary to ensure the safe operation of railroads in this state. Requires the Commission to report annually on the impact on competition, if any, of the regulatory fees assessed railroad corporations for the support of CPUC's activities.	
Pub. Util. Code Sec. 7661	Requires the Commission to investigate any incident that results in a notification to CEMA [now OES].	
Pub. Util. Code Sec. 7662	Requires a railroad to place appropriate signage to notify an engineer of an approaching grade crossing and establishes standards for the posting of signage and flags, milepost markers, and permanent speed signs.	
Pub. Util. Code Sec. 7665.2	By July 1, 2007, requires every operator of rail facilities to provide a risk assessment to the Commission and the agency for each rail facility in the state that is under its ownership, operation, or control, and prescribes the elements of the risk assessment.	
Pub. Util. Code Sec 7665.4	(f) Requires the rail operators to develop an infrastructure protection program and requires the Commission to review the infrastructure protection program submitted by a rail operator. Permits CPUC to conduct inspections to facilitate the review and permits CPUC to order a rail operator to improve, modify, or change its program to comply with the requirements of this article. (g) Permits CPUC to fine a rail operator for failure to comply with the requirements of this section or an order of the Commission pursuant to this section.	
Pub. Util. Code Sec. 7665.6	Requires every rail operator to secure all facilities that handle or store hazardous materials; store hazardous materials only in secure facilities; ensure that the cabs of occupied locomotives are secured from hijacking, sabotage, or terrorism; and, secure remote-control devices. Prohibits every rail operator from leaving locomotive equipment running while unattended or unlocked, from using remote control locomotives to move	GO 161: Establishes safety standards for the rail transportation of hazardous materials.

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
	hazardous materials over a public crossing, unless under specified circumstances.	
Pub. Util. Code Sec. 7665.8	Requires every rail operator to provide communications capability to timely alert law enforcement officers, bridge tenders, and rail workers of the local or national threat level for the rail industry, i.e. sabotage, terrorism, or other crimes.	
Pub. Util. Code Sec. 7673	Requires every railroad that transports hazardous materials to provide a system map showing mileposts, stations, terminals, junction points, road crossings, and location of pipelines in its rights of way.	
Pub. Util. Code Sec. 916.2 [formerly Sec. 7711]	Requires CPUC to identify local safety hazards on California railroads	
Pub. Util. Code Sec. 7711.1	Requires CPUC to collect and analyze near-miss data.	

Appendix B – Example of a Risk Management Status Report

August 2014 – December 2019

August 14, 2014: While monitoring the progress of track and grade crossing upgrades occurring on a crude oil train route through Bakersfield, a RSD inspector had concerns about the safety of a grade crossing at Shafter Road, located in an agricultural area within a mile of an elementary school.

To warn motorists of the presence of the railroad tracks, the crossing was only equipped with a passive warning system: two post-mounted white crossbucks (X-shaped warning signs) with "Railroad Crossing" in black lettering. Compared with active warning systems employing flashing red lights and gate crossing arms that lower over the roadway when activated by an approaching train, crossbuck signage is much less effective in preventing motorists from entering crossings when it is unsafe to do so.

The inspector considered improvements in the warning system at this location to be important because a relatively large number of trains passed through the intersection each month during both day and night, including trains carrying crude oil on their way to the Plains All American facility in Taft, and at times in low-visibility conditions caused by dense fog.

Because the existing signage posed a potential safety risk, the inspector sent a Risk Management Status Report (RMSR) to the Manager of Signals & Communications for Genesee & Wyoming Inc., the parent company of the railroad concerned, the San Joaquin Valley Railroad (SJVR). The RMSR described the problem and recommended that the warning system at the crossing be upgraded to an active warning system. The inspector then discussed the issue with SJVR management.

June 16, 2015: The inspector facilitated a meeting with representatives from Kern County, SJVR, UPRR, BNSF, Caltrans Division of Rail, and the RSD Rail Crossings and Engineering Branch, at the crossing in question. This crossing was identified as being potentially eligible for funding of hazard elimination and safety improvements through Federal Section 130 funds. The Section 130 program is a federally funded program, administered by the states, for the elimination of hazards at at-grade highway-rail crossings.

October 20, 2016: The RSD inspector was notified that the crossing was approved for Section 130 funding.

February 20, 2018: The RSD inspector was notified that funding was received and that the crossing upgrades were solicited for a contract bid.

December 10, 2019: The RSD inspector was notified that improvements at the Shafter Road crossing were completed. RSD inspectors verified that the passive crossing devices had been removed and replaced with CPUC Standard 9 warning devices, consisting of red-light assemblies that flash and automatic crossing gate arms that lower to block traffic when a train approaches the crossing. Included with the upgrade were advanced warning illuminated signs. These signs provide warning to the approaching roadway user, well in advance of the grade crossing, when the crossing is activated by an approaching train. Additionally, the illumination was upgraded to 12-inch LED lights, improving visibility.

Before: Shafter Road looking east with passive crossing protection

After: Shafter Road looking west with new active crossing protection installed

Appendix C – Examples of Operation Lifesaver Presentations

September 8, 2019: RSD staff representing Operation Lifesaver participated in the "Day of Preparedness" safety event hosted by the California Office of Emergency Services. The event was held in the Old Sacramento district of Sacramento. Other participants included first responders, such as the California Highway Patrol, Sacramento County Sheriff's Department, and Sacramento County Fire Department. RSD staff provided railroad safety information to a range of attendees, include age-appropriate presentations to children. Over 1,100 attendees visited the Operation Lifesaver booth.

RSD staff presenting railroad safety information at Old Sacramento event

September 21, 2019: RSD staff representing Operation Lifesaver participated in an event at the California State University at San Luis Obispo that included safety awareness presentations from public safety agencies, including the California Highway Patrol and the San Luis Obispo County Fire Department. RSD staff provided railroad safety information to over 1,500 students visiting the Operation Lifesaver booth.

RSD staff presenting railroad safety information at California State University, San Luis Obispo

July 19, 2019: As part of groundbreaking ceremonies for the new Metrolink extension into Redlands, RSD staff participated in an Operation Lifesaver event held next to the old train depot in that city. An estimated 240 members of the public visited the Operation Lifesaver booth, which featured a "wheel of fortune"-type game with questions that challenged players with 18 different rail safety tips and talking points, such as "How long does it take to stop a train?", "Are tracks private property?", and "Is it safe to stand next to the tracks?". Participants answered the questions and after discussing the correct response, were awarded prizes.

Additional presentations were given to small groups, which included information about the dangers of trespassing on railroad property, distances required for trains to stop, the Emergency Notification System signs posted at almost all road crossings of railroad tracks,[27] and how technology can be a major distraction to motorists, pedestrians, and bicyclists.

[27] Except for crossings located within railroad yards or port and dock facilities, FRA regulations (49 CFR 234.311) require the installation of Emergency Notification System signs at highway-rail and pathway grade crossings to provide information to road users so that they can notify the railroad company about unsafe conditions or malfunctioning active crossing warning devices.

From left to right, RSD inspector pictured with one volunteer and OL Assistant Coordinator for California

July 20, 2019: Two RSD inspectors participated in Operation Lifesaver activities at the annual Ocean Festival in San Clemente. San Clemente is a particularly appropriate location for rail safety education, as trespassing across railroad tracks is a frequent occurrence, due to surfers and other persons taking shortcuts to reach area beaches.

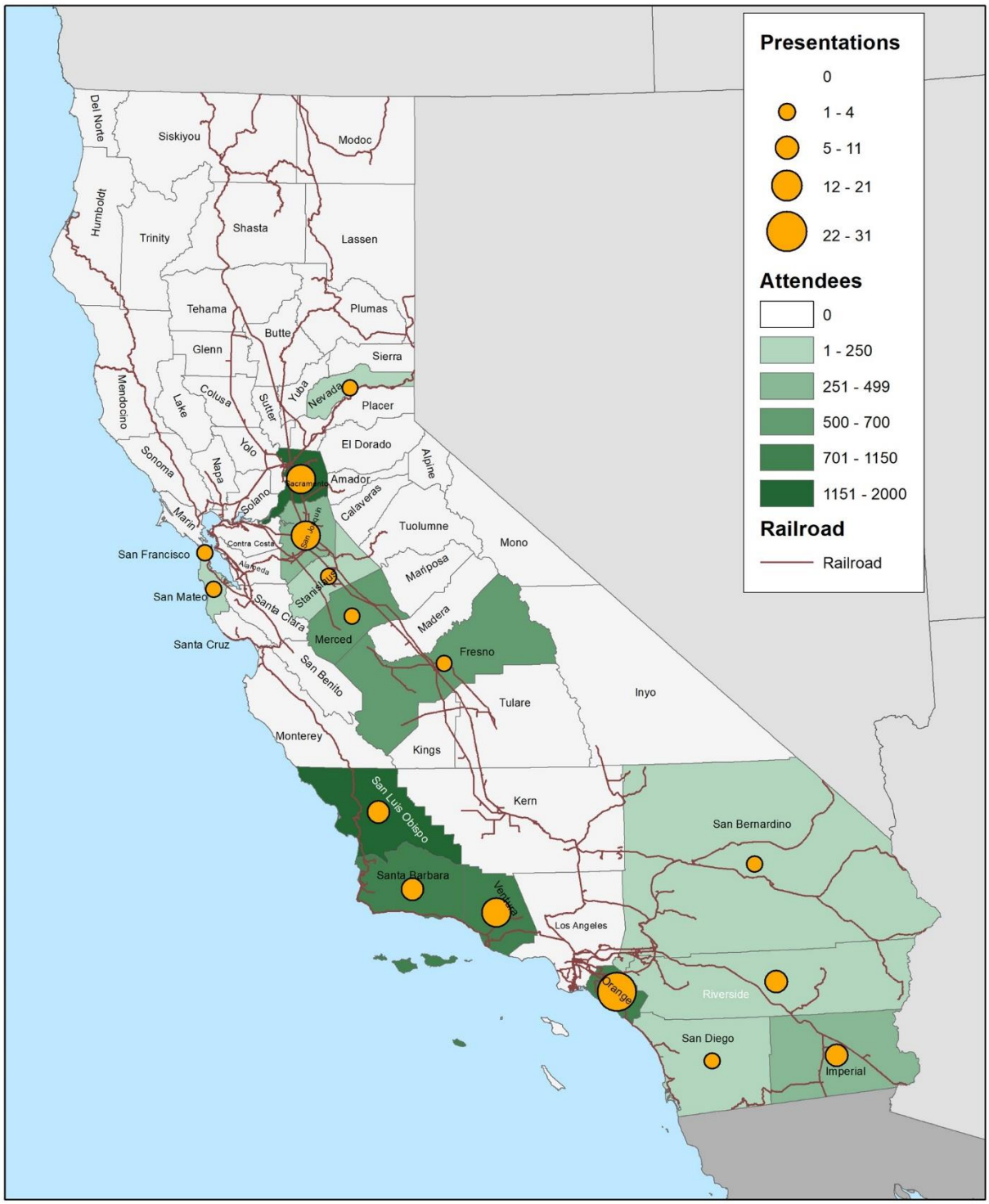
The inspectors provided information to an estimated 460 members of the public regarding safe practices on and around railroad tracks. Rail safety brochures were given out, and a "wheel of fortune"-type game was offered as described previously. that challenged players with 18 different safety tips and talking points, such as "How long does it take to stop a train?", "Are tracks private property?", and "Is it safe to stand next to the tracks?".

Two RSD inspectors (two men on far left) with other volunteers at the Operation Lifesaver booth with train tracks immediately behind them

September 27, 2019: Two RSD inspectors conducted two Operation Lifesaver presentations at Mary Buren Elementary School in Guadalupe, which were attended by more than 800 students. The presentations emphasized the importance making good decisions to avoid injury on railroad tracks, including only crossing the tracks at designated points, never trespassing, and never using bridges and tunnels for shortcuts. Also discussed was the difficulty of estimating the nearness and speed of an oncoming train. The children were reminded that trains run at all times of the day and night, and on all days including weekends and holidays. The dangers posed by areas with multiple train tracks were also discussed at length. For older children (grades 3 – 5), a separate presentation included how cell phones and other distractions can cause loss of awareness around tracks. When children responded correctly to safety questions, they were awarded small prizes such as pencils, erasers, or pins with the Operation Lifesaver logo and a safety message printed on them.

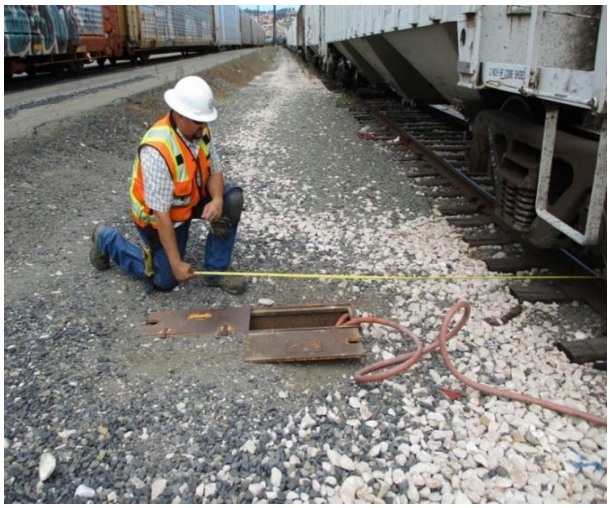
RSD inspector (with microphone) at Mary Buren Elementary School

Operation Lifesaver Presentations
by counties (FY 2019-2020)

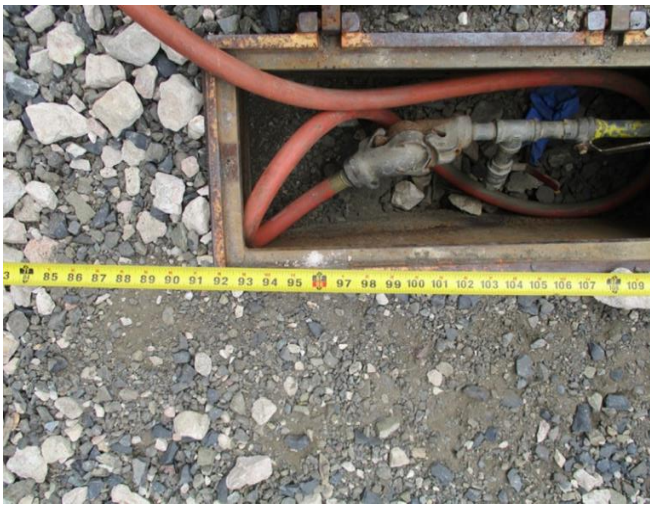


Appendix D – Examples of Regular Inspections

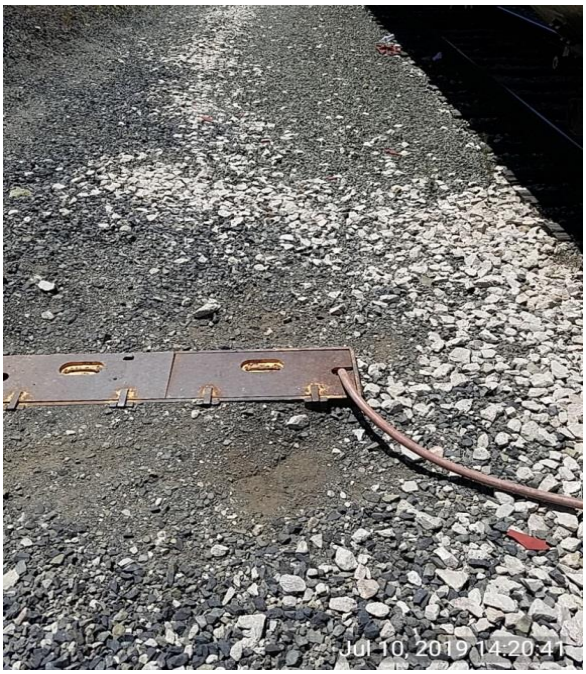
July 10, 2019: While conducting a routine inspection at the BNSF Railway rail yard in Richmond, RSD inspectors observed air hoses lying in walkways, and air hose boxes and lids open in the walkways, at the east end of the yard. This created tripping hazards for railroad employees and other parties when performing switching operations, inspections, making repairs to railroad equipment, and other activities, and was in violation of Commission General Order 118-A. An inspector notified a BNSF manager of the hazard, who agreed to correct the defect immediately. A follow-up inspection that afternoon found that the safety issues had been corrected.



Before: Air hose and open-air charging box and lid creating walkway tripping hazards



Before: Detail, open air charging box



After: Air charging station lids closed

After: Air charging hose position changed to reduce tripping hazard

August 19, 2019: RSD inspectors performed a routine inspection of UPRR tracks in Madera. The inspectors identified an unsafe railroad grade crossing where the asphalt had cracked, broken apart, and lifted in several areas alongside the track and in pedestrian walkways. This crossing experiences heavy vehicle, pedestrian, and bicycle traffic. Among other hazards, these conditions could cause bicycles and wheelchairs to become stuck or overturn. Commission General Order 72-B requires each railroad corporation to maintain the crossing area between lines two feet outside the rails of each track, and requires the surface of the highway to conform substantially to the plane of the rails for the entire area between rails and between tracks and two feet outside the rails. The inspectors notified a UPRR manager, who committed to bringing the crossing into compliance within a reasonable time period.

On January 9, 2020, RSD inspectors performed a follow-up inspection and observed that the railroad crossing was repaired in compliance with General Order 72-B.

Before: Degraded asphalt at crossing

Before: Degraded asphalt at crossing

After: Crossing after repairs completed

After: Crossing after repairs completed

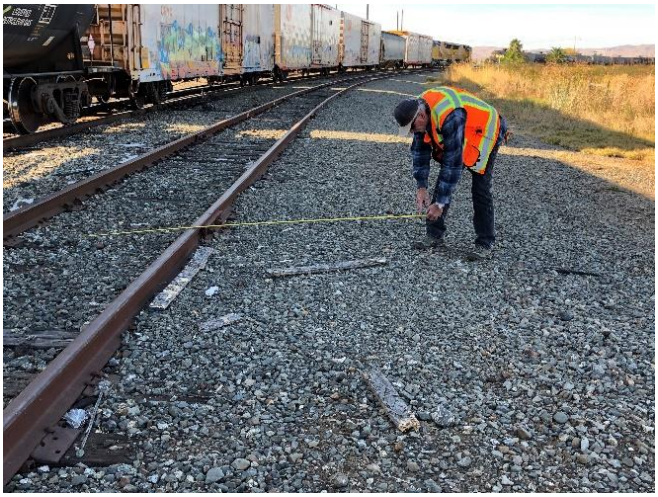
October 10, 2019: RSD inspectors conducted a routine inspection of the UPRR Suisun Yard. The inspectors found an unrestrained gate on the east side of a yard track which was not in compliance with the minimum side clearance of 8 feet 6 inches mandated in Commission General Order 26-D.

The inspection also revealed numerous tripping hazards, including a railroad angle bar, chunks of wood, and a wheel, in walkways in violation of Commission General Order 118-A. The inspectors also discovered a main track switch with railroad ties in the vicinity exposed as much as four inches above the level of the ballast. The ends of other ties also were exposed along the walkway. These conditions created a tripping hazard for railroad employees. GO 118-A requires the area within a three-foot radius around switch stands to have a reasonable regular surface, with a ballast slope not to exceed approximately one inch in eight inches.

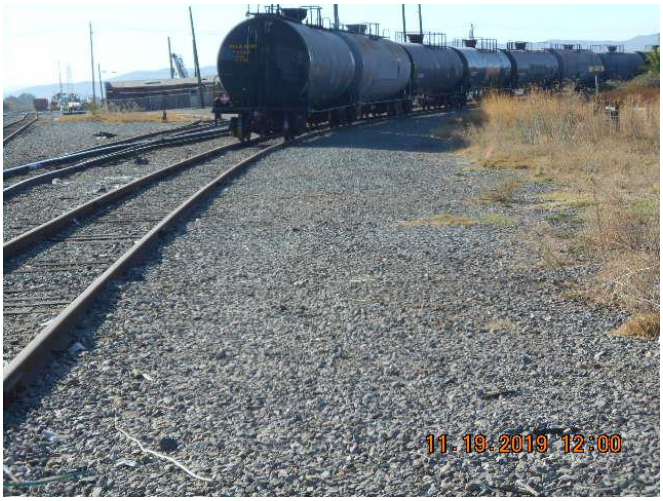
The above defects were reported to the UPRR Railroad Senior Manager of Track Maintenance, who issued a walkway condition warning to employees working in the affected areas and committed to correct all defective conditions by November 1, 2019. RSD inspectors conducted a follow-up inspection on November 19 and verified that the defective conditions had been remediated.

Before: Unrestrained gate

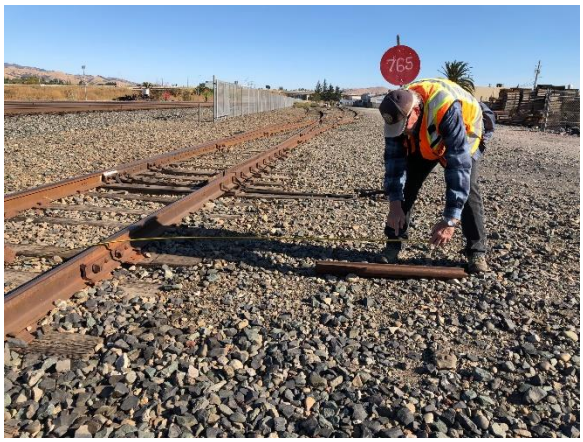
After: Gate restraint installed



Before: RSD inspector measuring edge of walkway at 8'-6" from centerline of track and noting debris in walkway



After: Debris removed from walkway



Before: Metal angle bar in walkway creating tripping hazard.

After: Angle bar removed from walkway

Before: Tripping hazard created by exposed railroad ties in walkway (ballast should go to tops of ties)

After: Ballast restored to GO 118-A standards

Before: Exposed railroad ties near track switch

After: Ballast restored to GO 118-A standards

October 16, 2019: While a RSD inspector and a UPRR signal maintainer were conducting a highway-rail grade crossing inspection in Compton, a UPRR track foreman advised them that a power distribution box which provided power to the signal apparatus (flashing red light and gate arms) at the crossing had been vandalized. The inspector and maintainer went to that location and found that the box had been broken into and that the power leads in the box had been disconnected, causing power to the crossing to be cut off. However, the signal apparatus still was working on standby battery power. The signal maintainer was able to jump two of the alternating current wires together to bring the power back online. He then chained and padlocked the power box and notified the UPRR Police Department. The RSD inspector asked the signal maintainer to test the functioning of the signal apparatus at the crossing, and it was determined that all functions were working as intended.[28]

Before: Vandalized power supply box

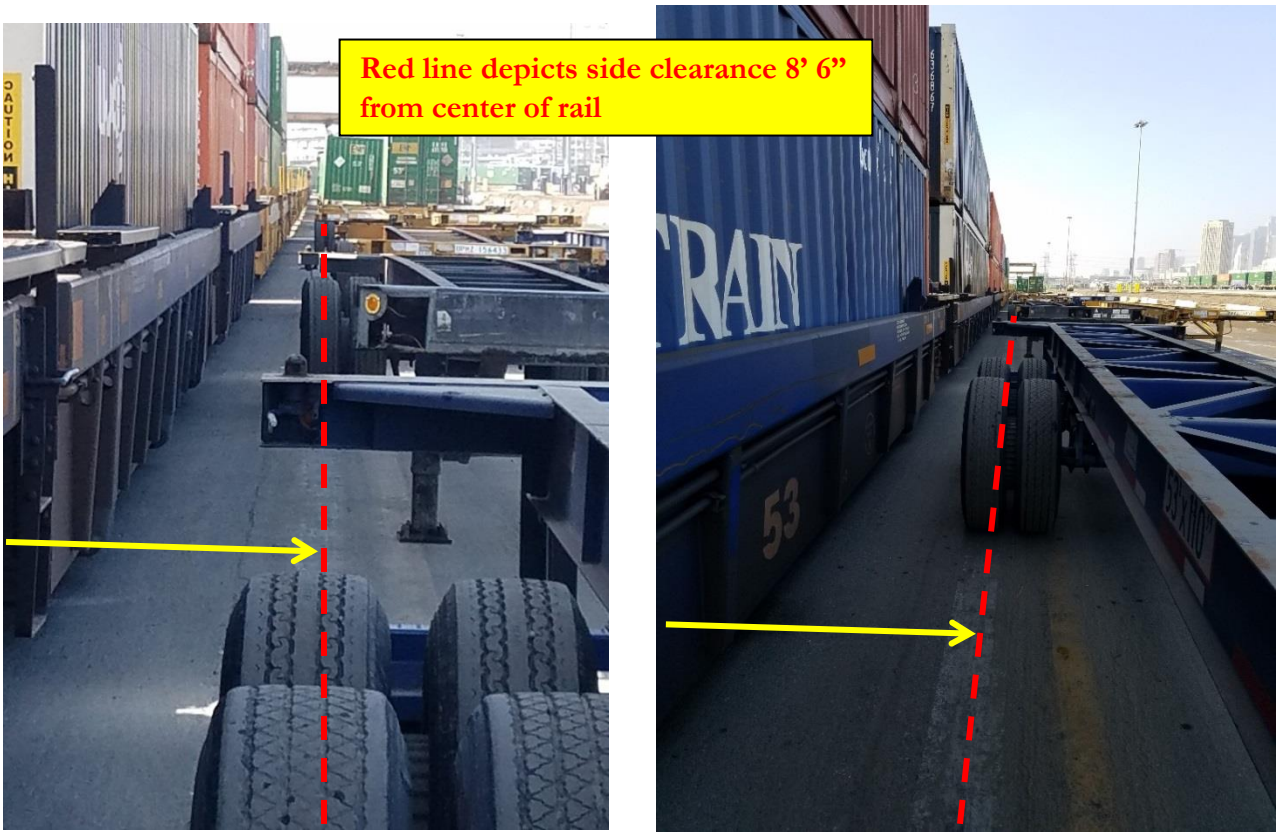
After: Power supply box secured with chain and lock

[28] It is possible that the damage to the power distribution box was related to the presence of a homeless encampment approximately thirty feet away. No homeless persons were observed tampering with the box or using power from it. However, the UPRR signal maintainer involved performs tests at this location on a monthly basis and stated that this encampment was not there during the previous test cycle, when no damage to the signal apparatus was observed. At other locations, RSD inspectors have observed similar units being forced open to attach and string wiring over to nearby homeless encampments to provide power, and it was the opinion of both the maintainer and the RSD inspector that this had been the case at the subject property.

Homeless encampment near power supply box

October 17, 2019: RSD inspectors conducting a routine inspection of the Los Angeles Transfer Center Yard discovered a hazardous side clearance condition on the loading/unloading and maintenance track: there was an empty truck chassis located closer to the track than allowed under Commission General Order 26-D, which requires that items placed adjacent to tracks be at least 8 feet 6 inches feet from the centerline of the rail.

The inspectors notified UPRR management about the non-compliant condition. The railroad removed the affected track from service until the hazards could be remediated, and as verified by the inspectors, corrected the GO 26-D violation the same day.



Before: Side clearance defective condition; empty chassis left within 8' 6" of center of rail

After: Side clearance defect corrected

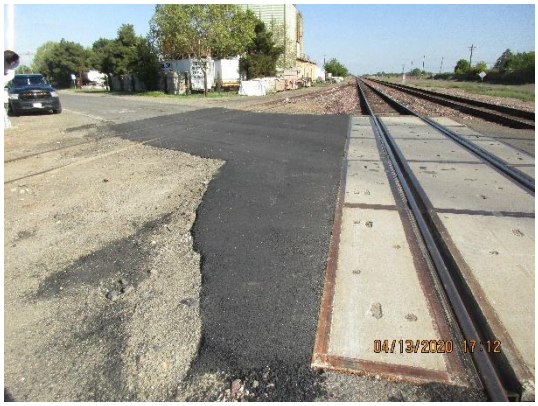
February 13, 2020: RSD inspectors performing a routine inspection of BNSF Railway railroad crossings near Le Grand, a small town in Merced County, identified unsafe conditions at two crossings, one each at Le Grand Street and Jefferson Street: asphalt had cracked, broken apart, and lifted in several areas along the track and pedestrian walkways.

The crossings experience heavy vehicle, pedestrian, and bicycle traffic. Bicycles and wheelchair wheels could get stuck in the cracked asphalt, creating a hazardous condition. The crossings are also a hazard to vehicle traffic, which could experience handling difficulties and wheel damage crossing the tracks.

These conditions were in violation of GO 72-B. The inspectors notified the responsible BNSF manager, who committed to bringing the crossings into compliance within a reasonable time period.

April 13, 2020: The inspectors performed a follow-up inspection and found that the railroad crossings had been repaired such that pedestrians, bicyclists and motorists could proceed safely.

Before: Unsafe conditions at Le Grand St. crossing



After: Le Grand St. crossing brought into compliance

Before: Unsafe conditions at Jefferson St. crossing

After: Jefferson St. crossing brought into compliance

March 24, 2020: RSD inspectors conducting a routine inspection of the UPRR rail yard in Stockton identified several tripping hazards in walkways, consisting of locomotive cables, a banding strap used to

secure freight, and several Blue Flags (a signaling device that warns that workers are on, under or between railroad rolling equipment). These conditions did not comply with General Order 118-A, which sets standards for walkway surfaces alongside railroad tracks. UPRR management was notified of the unsafe walkway conditions.

On the following day (March 25), a RSD inspector received a call from the UPRR Stockton Terminal Manager stating that all the tripping hazards had been brought into compliance. He also said that he had issued a Managers Directive to the UPRR Stockton Car & Mechanical Departments stating that leaving objects in walkways was creating unsafe conditions for crews who walk through these areas, and that such objects should be picked up and removed. The RSD inspector verified that the tripping hazards had been corrected.

Before: Locomotive cables in walkway

After: Locomotive cables removed from walkway

Before: Banding strap in walkway

After: Banding strap removed from walkway

Before: Mechanical Blue Flag in walkway

After: Blue Flag removed from walkway

June 15, 2020: Three RSD inspectors conducted a hazardous materials inspection at the UPRR J.R. Davis Yard in Roseville. At approximately 9:56 AM, they discovered a tank car leaking significant amounts of Liquefied Petroleum Gas (UN 1075) (Class 2). The leak was discovered when the inspectors noticed that an approximately two-inch layer of ice had formed on the front and rear of the protective dome of the tank car housing the car's closure valves. These valves are supposed to prevent the car's contents from escaping.

Ice accumulates on tank cars when pressurized refrigerated gas escapes and contacts the surface of the cars, causing moisture in the air to freeze on those surfaces. Normally, a small among of LPG leakage will not result in ice formation. Thus, while it is unclear whether and to what extent the tank leaked during its transport from the shipper in Texas to the Roseville Yard, the inspectors suspected that a substantial amount of gas already had escaped from the tank. This ice build-up had been missed by the shipper and UPRR personnel, although there had been multiple occasions where it should have been detected, such as at one or more of the three locations where the train crews were changed.

This leakage posed a major hazard to personnel, structures, and the environment in the vicinity. LPG is easily ignited by a spark or open flame. A major fire could have resulted if the contents of the tank car had been exposed to an ignition source. Under similar circumstances, an LPG tank car burst into flames in the nearby town of Lincoln in 2011, when a spark ignited leaking propane, resulting in two injuries and the evacuation of over 4,000 homes.

LPG also poses separate potential health risks to people in the immediate vicinity not equipped with protective gear. Exposure to the intensely cold vapor can cause freezing of exposed tissue, and under certain conditions and high concentrations, can displace oxygen required for breathing.

The inspectors immediately notified local Yard management to hold the tank car in place, and UPRR stopped all movement of rail equipment onto the yard tracks where the leaking tank car was located, as well as on tracks adjacent to the car. As per ROSB standard operating procedures, the inspectors contacted UPRR's Response Management Communications Center in Omaha, Nebraska to coordinate the initial response to the incident, including contacting a UPRR's Hazardous Materials (HM) Manager and the

Roseville Fire Department (FD). The HM Manager arranged for a contractor specializing in hazardous materials management based in Fairfield to come to the site and stop the leak. The inspectors sent pictures of the car and the leak to the UPRR HM Manager to aid UPRR in its response.

The contractor arrived on the scene approximately 45 minutes after the inspectors reported the leak, soon followed by the Roseville FD with a Special Operations Vehicle outfitted for hazardous materials response. The UPRR HM Manager arrived about an hour later. Equipped with specialized equipment and personal protective gear (e.g., scuba apparatus), Roseville FD personnel climbed on top of the car and determined the source of the leak to be two valves that had not been closed, and two loose valve plugs.

Each LPG car has two liquid line valves and one vapor line valve. Loading and unloading of LPG is done through the two liquid line valves. When closed, the valves are the primary mechanism that prevents the release of tank contents. Each valve has a plug, inserted into the valve's outlet, as a secondary closure mechanism to prevent a release should the valve fail.

In the incident involving this particular tank car, the shipper had left the two liquid line valves fully open and did not properly apply Teflon tape to the plugs nor tighten them to make a secure seal. The firemen closed the valves, resealed the plugs, and checked for other leaks. None were found. The car was determined to be safe for transport at 12:03 PM. The Roseville FD determined that the leak did not create adverse health effects to personnel at the site or to persons offsite.

The inspectors noted several non-compliances by the shipper with 49 CFR Section 173.31, Use of Tank Cars, as listed below. This finding was conveyed to FRA with a recommendation that FRA assess a violation against the shipper. The violation carries a possible fine of up to $15,000. FRA may decide to assess additional penalties as well, based on its own inspection(s) of the Texas shipper.

(a) General

(1) No person may offer a hazardous material for transportation in a tank car unless the tank car meets the applicable specification and packaging requirements of this subchapter or, when this subchapter authorizes the use of a non-DOT specification tank car, the applicable specification to which the tank was constructed.

d) Examination before shipping

(1) No person may offer for transportation a tank car containing a hazardous material or a residue of a hazardous material unless that person determines that the tank car is in proper condition and safe for transportation. As a minimum, each person offering a tank car for transportation must perform an external visual inspection that includes:

…(iv): All closures on tank cars and determine that the closures and all fastenings securing them are properly tightened in place by the use of a bar, wrench, or other suitable tool;

…(2) Closures on tank cars are required, in accordance with this subchapter, to be designed and closed so that under conditions normally incident to transportation, including the effects of temperature and vibration, there will be no identifiable release of a hazardous material to the environment. ln any action brought to enforce this section, the lack of securement of any closure to a tool-tight condition, detected

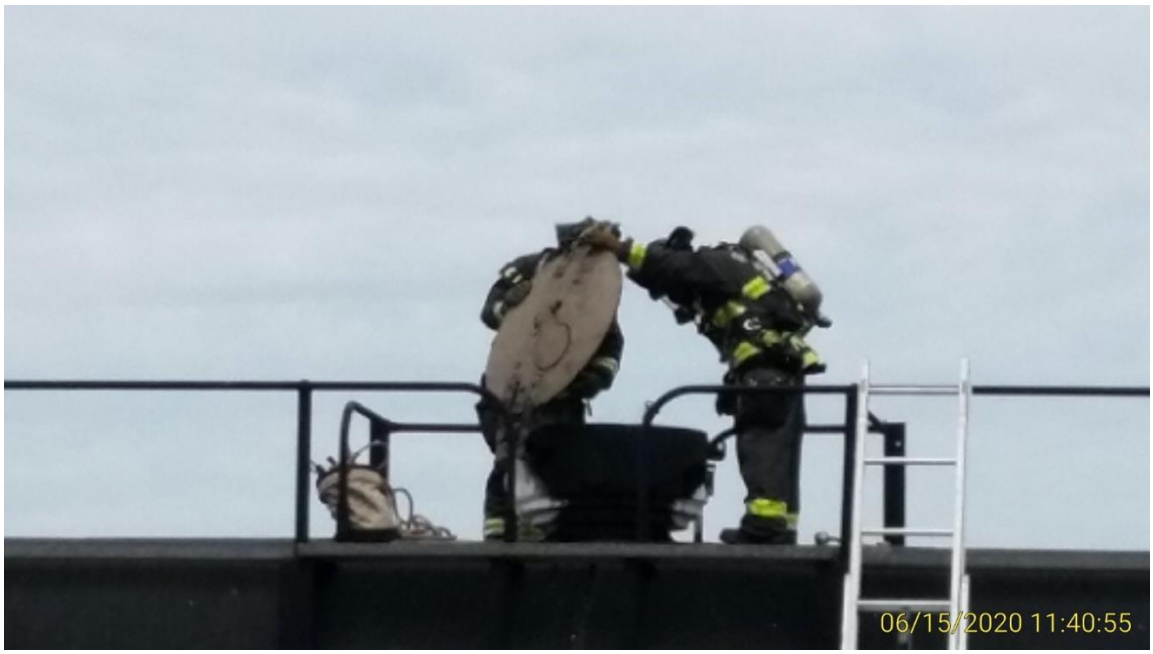
at any point, will establish a rebuttable presumption that a proper inspection was not performed by the offeror of the car. That presumption may be rebutted by any evidence indicating that the lack of securement resulted from a specific cause not within the control of the offeror.

RSD inspector pointing to ice on protective dome of tank car indicating a leak

Closeup of ice buildup

Roseville Fire Department Special Operations Vehicle

Roseville Fire Department in scuba gear preparing to open protective dome; fire hose is charged with foam fire suppressant in case fumes ignite



Roseville Fire Department in scuba gear checking inside dome for source of leak

Roseville Fire Department Captain and RSD inspector exchanging information

Appendix E – Example of a Focused Inspection

December 3, 2019: RSD inspectors performed a multi-discipline inspection of the BNSF and UPRR Yards in Pittsburg.

The inspection team inspected a total of 25 tank cars for compliance with applicable federal regulations governing closures, placards, stencils and other items pertaining to the shipment of tank cars containing hazardous materials. The team also observed the handling of hazardous materials during switching operations and inspected for proper shipping papers in possession of the crew while handling these tank cars. The following defects were noted:

- 5 tank cars containing flammable compressed gas had placards not visible due to deterioration.
- 1 tank car had a top operating platform continuous barrier not provided at an opening without side ladders.
- 1 tank car containing flammable compressed gas had a placard with improper size location and appearance.
- A missing continuous barrier was observed on a top operating platform of a tank car, leaving a gap on the side opening through which someone on the top platform could fall up to 12 feet.

Placards which are not readable due to deterioration or otherwise deficient pose risks to first responders to a hazardous materials emergency such as police and firefighters, who, in a derailment involving tank cars, rely on the information on the sides of these cars and on the placards to identify what hazardous material is contained in them. This information dictates such things as proper firefighting techniques and proper evacuation distances for surrounding areas if necessary.

All defects were reported to the UPRR Manager of Terminal Operations and the BNSF Trainmaster in charge of the area.

The RSD inspectors observed a BNSF local freight train crew switching cars to be properly placed in their train to be delivered to various industries in the area. The following operating practices were monitored during their observations:

- Proper protection of shoving movements.
- Observation of unattended equipment left in the clear of adjacent tracks.
- Proper operation and securement of hand throw switches and derails.
- Locomotive safety.
- Securement of unattended equipment.
- Observance of maximum authorized speed requirements using handheld radar device.
- Inspection of employee certification.

The inspection team found three non-compliances with General Order 118-A at three switches in the BNSF Yard. These switches are used twenty-four hours a day and at times during low visibility. The ballast around the switch ties at these locations was below the tops of the ties from three to five inches, in violation of GO

118-A. With the ties this far above the level of the ballast, train crews using these switches could easily trip and fall against the rail, switches or moving equipment during switching operations.

In addition, several General Order 72-B defects were found at the Colombia Street public grade crossing in the BNSF Yard, including flangeway gaps in excess of two and one half inches. This is the maximum gap allowed under this General Order between the rail and suitable paving material. Excessive flangeway gap exposes the public to the possibility of a bicycle or motorcycle tire, a wheel on a wheelchair or a person's foot becoming lodged between the rail and paving material. This condition also can cause a rough surface for vehicles to traverse.

These General Order defects were reported to the BNSF Roadmaster in charge of this area, who agreed to promptly initiate a remediation plan and to publish warnings to railroad employees working in these areas.

The inspectors returned on January 21 and March 13, 2020, at which time they verified that the defects found in the December 3 inspection had been corrected.

Before: Ballast around switch is below the top of the ties, creating tripping hazard

After: Ballast added; tripping hazard removed

Before: RSD inspectors measuring flangeway gap; gap non-compliant with GO 72-B

After: Flangeway gap repaired with asphalt; now in compliance

Before: Approach grade exceeds six percent; not in compliance with GO 72-B

After: Approach grade repaired; now in compliance

Appendix F – Example of an Accident Investigation

RSD supervisors quickly evaluate reported railroad accidents and determine whether they need to dispatch an inspector or inspection team to investigate these events. During FY 2019-2020, RSD inspectors performed 177 accident investigations. An example is presented below.

April 19, 2020: Five cars of UPRR freight train MRVOA-19 derailed at approximately 1:47 PM near the Emeryville Amtrak passenger depot. Three of the cars were tank cars containing LPG hazardous material residue. The other two cars were loaded with frozen chicken. No deaths or injuries occurred from the derailment, nor were any of the cars' contents released. Approximately 400 feet of track was damaged.

The derailment occurred on a secondary track with a 10 miles per hour (mph) speed limit. The track is adjacent to two main tracks which carry up to 20 passenger trains a day at speeds up to 50 mph. The two main tracks were not damaged by the derailment. Although one main track was blocked for several hours, no passenger trains were delayed, as they were routed onto the other main track. An additional secondary track also was damaged in the derailment. Neither of these secondary tracks carry passenger trains. The derailment resulted in three railroad street crossings, at 65th, 66th, and 67th streets in Emeryville, being blocked for several hours until the crossings could be cleared. The damaged secondary tracks were repaired and put back in service at approximately 4 PM the following day.

RSD inspectors were notified about the derailment by the UPRR local Manager of Track Maintenance on the day of the derailment. The following day, April 20, 2020, a RSD inspector travelled to the derailment site and met with UPRR managers. RSD's investigation determined that the derailment was caused by a broken rail, which had split due to an internal failure of the rail termed a "detail fracture." These fractures are caused by metal fatigue from rail equipment going over rails, with the main risk factors being the tonnage and speed of this equipment.

Detail fractures develop inside the rail and are not visible to the naked eye during inspections by railroad and agency personnel. To detect this condition, other methods to examine the internal structure of track are necessary. Ultrasonic testing is the primary such method in use. Ultrasonic sensors typically are mounted on equipment that proceeds down tracks while sending ultrasonic sound waves through the rail, capturing the resulting data for review by trained personnel. When defects are identified, maintenance crews are sent to replace those sections of rail. This testing was not required for the track that failed on April 19, as the applicable federal regulation (49 CFR §213.237) only requires more than visual inspection where the track speed limit is 40 mph or greater. As a result, UPRR was only performing visual inspections of the tracks that failed.

Recognizing the risks of not performing more than visual inspections of these tracks, the RSD inspector contacted the UPRR regional Director of Track Maintenance and recommended that all tracks adjacent to mainline tracks carrying heavy tonnage be subject to the same testing requirements as track regulated under 49 CRF 213.237, even when such testing is not required under federal regulations.

The Director of Track Maintenance agreed with this recommendation and committed to adding such tracks to the list of UPRR tracks under his jurisdiction that are required under federal law to be tested annually by more than visual inspections.

Derailed cars, Emeryville

Broken rail, Emeryville

Track testing vehicle equipped with ultrasonic test equipment

Appendix G – Example of an Uncontrolled Train Movement

August 25, 2019: An Amtrak passenger train experienced an uncontrolled movement in the city of Los Angeles, roughly one mile south of the Los Angeles Union Station. The train had been proceeding at an estimated speed of 24 mph when three passenger cars detached from the rear of the train at approximately 4 AM. When the cars separated, both portions of the train experienced an emergency application of the air brakes which stopped both parts of the train, with the front end stopping in about 210 feet and the rear end stopping in about 150 feet.[29] The cars did not derail, and none of the 75 passengers on board were injured. No hazardous materials were released. The passengers were taken off the train and moved to buses which continued southbound to the next stop.

RSD inspectors responded to this incident the same day. As the three cars detached because the coupling mechanism connecting them to the rest of the train had failed, RSD's investigation focused on two possible causes: was the coupling mechanism functioning properly, and had the train crew correctly followed Amtrak's rules of operation when picking up additional cars?

Prior to departure from Union Station, three passenger cars and one locomotive were added to the train, bringing the total number of cars to seven and the number of locomotives to three. The three additional passenger cars were the same three that detached from the train after departing the station. As the conductor coupled the three new cars to his train, he "stretched" the cars. Stretching is accomplished by pulling the locomotive forward, which tests whether the couplers will hold the cars together once the train proceeds. He then tested the air brake system to ensure that it was working properly on all cars.

An interview was conducted with the conductor and engineer on the train by Amtrak officials in conjunction with RSD inspectors. RSD identified two non-conformances with Amtrak's Air Brake and Train Handling (ABTH) Rules, which had become effective on July 31, 2019, less than a month prior to the incident:

- ABTH Rule 3.1.3C required the conductor to insert a test pin into the couplers to ensure that the couplers are locked together. The conductor stated that he had not inserted the test pin into the couplers, and that he was unsure of the proper procedure regarding the test pin.
- ABTH Rule 3.1.3D required the that the train be stretched twice after picking up extra cars. The conductor stated that he had stretched the train once before performing the air test on the train. The engineer confirmed the single stretch of the train. It is not known if either crew member was aware of the requirement to stretch twice.

[29] Emergency air brakes are automatically applied whenever the air hoses between cars are disconnected. In this case, the separation of the cars pulled the hoses apart.

An additional problem was discovered by a RSD mechanical inspector working in conjunction with personnel at Amtrak. They examined the coupling mechanisms on the two cars on the ends where they had separated and identified an issue in which the couplers would only lock into place some of the time, indicating a faulty mechanism. Even though the cars were coupled at the time the train was stretched, the faulty coupler was not locked in place.

Amtrak provides federally mandated annual training for its employees, but this requirement is not specific as to which rules are covered. When the new ABTH Rules went into effect on July 31, Amtrak did not provide training at that time that included the new requirement for use of the test pin, nor did Amtrak brief crews on the requirement to stretch twice when picking up cars, relying solely on published instructions to employees to review the new rules prior to their going into effect.

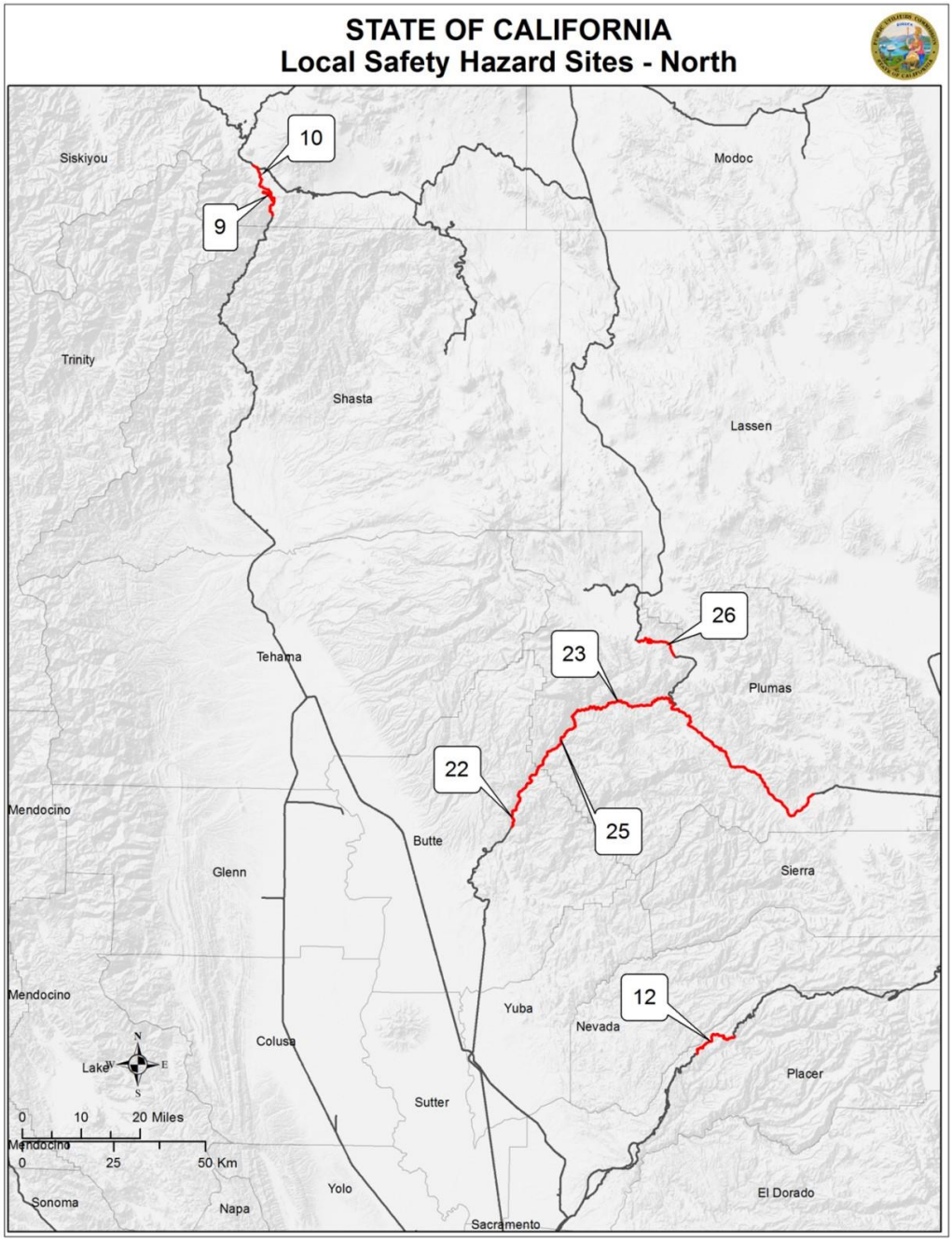
Although Amtrak had not violated any state or federal regulation related to the incident, better communication and training might have prevented this uncontrolled movement. RSD Investigators made the following recommendations to Amtrak:

- Immediately contact all employees to ensure that all brakemen, conductors, and engineers understand the requirements of ABTH rules 3.1.3C (test pin insertion) and 3.1.3D (train stretching two times).
- Incorporate ABTH rule 3.1.3C into Amtrak's annual rules training. While the requirement to stretch the train twice is a straightforward instruction to the train crew, the pin-related failure is a process that involves using a special piece of equipment in a particular manner and calls for additional training.
- No recommendation was made regarding the defective coupler. The cause of the failure is unknown. No metallurgical defects or excessive wear were identified by the RSD inspector. It appears to be an isolated incident: no similar events of passenger train separation due to a faulty coupler or coupling have been encountered by RSD.

Amtrak officials concurred with these recommendations, and in September 2019 contacted all of its operating employees to review ABTH rules 3.1.3C and 3.1.3D. Amtrak also developed a training video to explain the proper use of the test pin.

Appendix H – Local Safety Hazard Site Maps

Local Safety Hazard Sites are shown below in three areas: 1) Northern California, 2) California Central Coast/Desert Valley, and 3) Southern California. The map numbers correspond to the list of Local Safety Hazard Sites presented in Chapter V.




STATE OF CALIFORNIA
Local Safety Hazard Sites - Central
Inyo
San Benito
Fresno
Tulare
Kings
Monterey
San Luis Obispo
1
Kern
16
Santa Barbara
Ventura
Los Angeles
N
W
E
S
0 10 20 Miles
0 25 50 Km


STATE OF CALIFORNIA
Local Safety Hazard Sites - South
Kern
San Bernardino
Los Angeles
Riverside
Orange
San Diego
Imperial
28
30
19
29
6
4
3
31
N
W
E
S
0 10 20 Miles
0 25 50 Km

Appendix I – Examples of RSD Responses to Homeless Encampments

On June 29, 2019, while conducting an inspection on a UPRR section of track in Santa Ana, a RSD inspector encountered homeless encampments on the railroad ROW. Trespassers were observed walking down the center of the track, posing an immediate danger to themselves and to train crews working in the area. Tents and debris were located within the 8-foot 6-inch clearance envelope on either side of the track required in the CPUC 's General Order 26-D, and some debris were on the track itself. The encampments also posed tripping and other safety hazards on the walkway, in violation of CPUC's General Order 118-A. These were hazardous conditions for the homeless inhabitants as well as for railroad employees, RSD inspectors, and other persons needing to walk through the area.

RSD staff immediately contacted the UPRR risk management response center to report the issues. The response center contacted local train management to alert all trains and crews that work in the area to be aware of the dangers and notified railroad police to remove the trespassers. UPRR maintenance crews performed a partial clean-up of the area, followed up on August 14 and 15, 2019, with a comprehensive clean-up along a half-mile-long stretch of railroad property performed by Union Pacific personnel along with railroad police. Truckloads of debris from the encampments were removed, including hazardous materials potentially posing health and safety risks to persons in this area.

Before: Homeless encampment and debris on and near UPRR Santa Ana tracks

Before: Encampment near and trespasser near UPRR Santa Ana tracks

After encampment removal

A more recent example occurred toward the end of the fiscal year. On May 1, 2020, RSD inspectors conducted a GO compliance inspection of UPRR property in Anaheim, and encountered a homeless encampment with tents and debris located close to mainline tracks, creating violations of General Orders 26-D and 118-A. The inspectors notified UPRR of the problem the same day. Prior to the end of FY 2019-2020, the encampment, including the tents and associated debris, had been removed by third party contractors hired by UPRR, accompanied by UPRR railroad police. UPRR also contracted with private security firms to keep the area secure.

ROSB inspectors will continue to monitor these areas for new encampments and resulting non-compliant conditions.

Before: Homeless encampment and debris near UPRR Anaheim tracks

After: Encampment removed

List of Abbreviations

AAR	Association of American Railroads
ABTH	Air Brake and Train Handling
ACE	Altamont Corridor Express
APTA	American Public Transportation Association
ASLRRA	American Short Line and Regional Railroad Association
ATK	Amtrak
BNSF	BNSF Railway
CFR	Code of Federal Regulations
CHSRA	California High Speed Rail Authority
CORT	Crude Oil Reconnaissance Team
CPUC	California Public Utilities Commission
ERVSD	Extended Revenue Service Demonstration
FRA	Federal Railroad Administration
GO	General Order
GOTP	General Order Training Program
HGAP	Heavy Grade Audit Project
HM	Hazardous Materials
HSR	High Speed Rail
LPG	Liquefied Petroleum Gas
LSHS	Local Safety Hazard Site
MP&E	Motive Power and Equipment
MPH	Miles Per Hour
NWP	Northwestern Pacific Railroad
OLI	Operation Lifesaver

OP	Operating Practices
PCMZ	Caltrain
PSRR	Pacific Sun Railroad
PTC	Positive Train Control
Pub. Util. Code	California Public Utilities Code
RMSR	Risk Management Status Report
ROSB	Railroad Operations and Safety Branch
ROW	Right of Way
RSD	Rail Safety Division
RTEP	Railroad Tunnel Evaluation Project
SCAX	Metrolink
SDNX	North Coast Transit District
SJVR	San Joaquin Valley Railroad
SMART	Sonoma-Marin Area Rail Transit
UPRR	Union Pacific Railroad