



Inside THE RAIL

From NASA's Confidential Close Call Reporting System



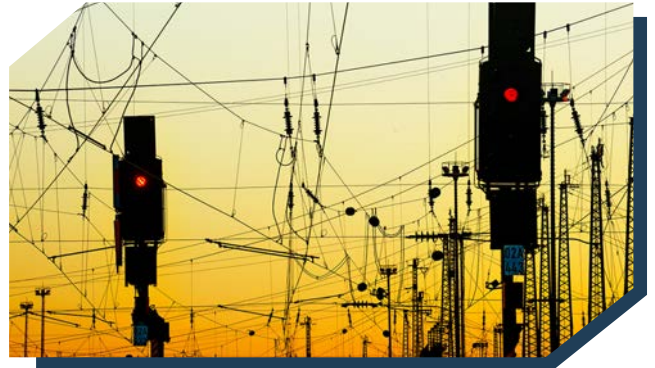
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Signal Department Reports

The employees who maintain railroad signal systems are highly trained professionals who are essential to the safety and efficiency of rail transportation. Signal employees play a vital role in ensuring the smooth and safe operation of signaling systems across freight, passenger, and commuter railroads. Their duties require them to work near and on railroad rights-of-way. They work in all climates, at elevated locations, and with live electrical equipment. Their duties include the following:

- Installing and maintaining advanced signaling equipment
- Diagnosing issues and performing repairs to prevent system failures
- Inspecting and enforcing regulatory compliance and operational safety standards
- Promoting public safety through the accurate and timely function of signals at rail/highway crossings throughout the rail network



Signal employees are essential to the safety of rail transportation and are exposed to hazardous working conditions. In this newsletter, we will examine several reports that were submitted to C³RS by railroad signal employees.

Signal Maintainer on Foreign Railroad Needed Protection

In the following report, a Signal Maintainer was working on a switch without blocking protection from the foreign railroad's train Dispatcher.

■ *My Carrier was surfacing inside a Foreign Carrier diamond, and the Foreign Carrier was replacing rail on their Main Track. I was granted permission to test my switches (only Switch X, was on my Carrier's Main Track). The Foreign Carrier's Dispatcher told me to communicate with the Working Limits holder. After communicating with the Employee in Charge (EIC) I tested Switch X. We went to test Switch Y which is on the Foreign Carrier's Main Track. My Carrier's EIC only had Working Limits on my Carrier's Main Track through the diamond. I tested Switch Y inside the same diamond but technically outside of the Working Limits. The Foreign Carrier still had On Track Equipment on the Main Track, but I overheard they had given up their track protection. I am unsure what they had for protection, but I don't think I had protection to open the switch. After the switch had been open, tested and adjusted, I called the Foreign Carrier's Dispatcher back to ask for local control to have a coworker operate the switch under power to ensure a good test. The Foreign Carrier's Dispatcher again told me I had permission to do anything in the area assuming I spoke with the EIC. On my way home I realized the potential error.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Signal Maintainer, stated having permission from his Carrier's Employee in Charge (EIC) to work on Switch Y. Switch Y was located outside of the Working Limits of his Carrier and within the diamond limits of the Foreign Carrier's Dispatcher. Later while driving home, the reporter was talking with his Carrier's EIC when the reporter realized permission was required from the Foreign Carrier's Dispatcher to work on Switch Y, which the reporter did not have. Going forward, the reporter will get track protection such as Foul Time or take local control of the switches.

Is the Power Disconnected?

This Signal Maintainer was preparing equipment to be salvaged and made an incorrect assumption that the power had been disconnected.

■ *At the Interlocking, I was removing old equipment to be salvaged. The last piece of equipment to be removed were snow blower breakers. All of the breakers were in the off position. I had cut out four small breakers before I got to the large main breaker. With six wires to cut, I got through four of them. On the fifth wire, I saw a bright flash from the sixth wire. I believe that assuming the power had been turned off along with not having a multi meter available to verify, was the cause of this incident. I believe that it is imperative to always verify that the circuit is not live before disconnecting anything from it.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Signalman, was working alone disconnecting power to equipment near control points that were going to be upgraded. Power had been shut off several weeks prior. The reporter said there were no lights in the bungalow and assumed the power was off on the circuits as well but did not initiate steps to verify they were off. The Signalman was unaware the circuits were on a separate feed, and they were energized. The reporter began cutting through live wires. The third wire to be cut had faulty insulation and touched the breaker panel, which was connected to the ground and created a flash and an arc. The Signalman is very grateful the incident was not worse. To prevent mishaps like this in the future, the reporter said there needs to be an Electrician or other qualified employee to perform electrical work. The Signalman also recommended improved communication among the crafts as well as implementing a proper Lock Out/Tag Out procedure.

When in Doubt, the Safe Course must be taken

This Signal Foreman asked for a safety device to protect workers but was denied.

■ *I was told to install a new base station relay house and I asked to have overhead wires Alternating Current (AC) wires booted for protection. The Supervisor said no and didn't boot the AC overhead wires.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Signal Foreman, stated that instructions were to install a new base station relay in a radio house so the telephone company could bring fiber optic cables for PTC. There were two sets of power lines, one set running east and west and the other running north and south. The boom truck is required to maintain a certain distance from the power lines and it's hard to gauge the distance. For protection, the Signal Foreman asked the Supervisor to attach a rubber boot to the Alternating Current (AC) wire to keep the potential of electric current from the boom truck causing an arc, which could cause an injury. However, there was time pressure to complete the project by Management and was told no. Although nothing occurred from this incident, the reporter emphasized that due to Supervision rushing to get jobs done, the quality of work goes down and someone might get injured.

Unburied Cables Can Be Shocking!

This Signal Foreman reported a common practice which has caused injuries and is a hazard for all employees.

■ *Over the weekend, we were replacing Switch X layout in Interlocking X. The old switch layout was removed and then the track bed was excavated. Electric traction then installed conduit four to six inches deep under the ground for electric rail feed and return. The Carrier required depth for these cables is 36 inches from the bottom of the tie. In addition to that, some of the feeder cables were also installed on top of the ground. I have reported this dangerous work practice to our safety department numerous times...There are exposed cables at most interlockings on the Carrier System.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Signal Foreman, stated this practice has been ongoing for several years. The reporter explained that signal employees are required to bury their conduit as well, which are significantly lower voltage wires, and were able to accomplish the task at the time the new switch was installed. The reporter further explained that the Signal Department has even offered the Electric Traction Department to piggyback the Track Authorities and work together so all conduits could be buried at one time. The reporter noted that the Electric Traction Department never takes up the offer and continues to leave the high voltage wire in the right of way... The reporter is aware of one instance of an employee being injured from this practice and is concerned it will happen again. The reporter mentioned this is not only a hazard for electric shock, but the conduit and wires on the right of way create a tripping hazard and can be hard to see after it snows.

Did You Know?

NASA C³RS has mobile friendly report forms so you can submit your report from your mobile device!



MOBILE FRIENDLY REPORTING

Also, when you submit a C³RS report, a NASA C³RS Expert Analyst may call you to get more information or to better understand the safety issues you are sharing. It is very important that you return our call as soon as possible so that your identification (ID) strip (sent by the U.S. Mail) can be returned to you quickly.

The incoming call on your phone will not say NASA, but will be from **area code 650 or 217**. Remember, the more information you include in your report, the faster the ID strip can be returned to you!

Report Intake By Craft January through September 2025	
Transportation	3,539
Engineering	161
Mechanical	147
Signal	2

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<https://c3rs.arc.nasa.gov>

Monthly Report Intake Previous 3 Months	
July	447
August	438
September	413