



# National Transportation Safety Board

Office of Railroad, Pipeline, and Hazardous Materials Investigations  
Washington, D.C. 20594

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## Railroad Operations – Factual Report of Investigation

DCA13FR008  
Union Pacific Railroad  
Collision  
Hays, Kansas  
July 16, 2013

# Railroad Operations Factual

## A. Accident

Location: Hays, Kansas  
Train #1: LDG89 15  
Train #2: MSIDV 15  
Operator: UPRR  
Date: July 16, 2013  
Time: Approximately 1:20 a.m. (CDT)  
NTSB #: DCA13FR008

## B. Accident Summary

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

## C. Railroad Operation Group

Ted T. Turpin NTSB – Operations Group Chairman	Nile Drago UTU-Chairman Safety Team
Steven D. Facklam Safety Task Force – BLE&T	John J. Wyker Chief Inspector FRA – Operating Practices
Steven Lord - General Director Regional Operations, Transportation – Northern Region Union Pacific Railroad	

## D. Accident Details

### 1.0 Narrative

#### *Train LDG89 15*

The LDG89 15 crew (Engineer, Conductor and Brakeman) went on duty at Salina, Kansas (MP 186.66) at 1:00 p.m., July 15, 2013. They had numerous stops during their trip to pick cars up and to set cars out. At the last work location (Walker MP 275.5) prior to reaching Hays, Kansas, the crew decided not to finish the work because they were running short of time. The crew agreed they would be able to complete the work on their return trip to Salina on the following day.

The crew arrived at the main track switch at the east end of Hays near MP 288.7 about 12:35 a.m., July 16, 2013. After stopping for the switch, the crew had a job briefing. It was agreed that the brakeman would line the main track switch and derail to allow the train to enter the passing track 141, stop the train when it cleared, and then realign the main track switch and derail. According to the interviews, the brakeman and conductor stated that they had performed the duties agreed during the briefing.

The brakeman lined the main track switch so the train could enter the passing track 141. He walked farther down the track to the derail and lined it for the movement. During his interview he stated that he started walking back towards the main track switch on the south side of the track as the train entered the passing track. He was monitoring the train so that he could tell the engineer when the rear of the train had cleared the derail on track 141. He recalled telling the engineer that he had fifteen car lengths before he needed to stop<sup>1</sup>. When the train cleared the derail, he told the engineer to stop.

During his interview, the brakeman said he reached the main track switch by the time the train cleared the derail. He then said he lined the main track switch back for main track movements. After which, he walked up to the derail and returned it to the derailing position.

The brakeman recalled the following:

...[I] had them stop, said, "That'll do." And I went ahead and took the – checked the points on the main line switch, unlocked it, threw it back for main-to-main move, and then walked up and put the derail back and restored it and locked it, and started heading up towards the cut...

When he completed these tasks, he looked up the south side of the train and could see the conductor separating the train at the Vine Avenue crossing. The brakeman used his radio to report that the switch and derail had been returned to their normal position.

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<sup>1</sup> There is a delay between when the engineer applies the brakes and when a train stops. When instructing an engineer by radio, it is standard practice to give car counts so that the engineer can make the necessary preparations to stop the train.

The engineer stated later, “I heard on the radio that he had restored 1 switch and derail. I heard on the radio, “Switch and derail restored.” The conductor said he recalled during his interview: “What he told me was that the main line 1 switch and derail were restored.”

The conductor needed this information so that he could release train LDG89 15’s track warrant authority. The conductor walked over to the yard office at Hays and called the train dispatcher on the phone. He released LDG89 15’s track warrant authority. Once the track warrant authority was released, the train dispatcher authorized train MSIDV 15 to proceed west through Hays.

By the time that the conductor had separated the train at the road crossing the brakeman had walked up from the rear of the train. The brakeman continued with separating the train and securing hand brakes.

The brakeman met up with the engineer at the locomotives and retrieved his personal belongings. The engineer and brakeman were then picked up by a van sent from the local motel and taken to the yard office. Once the crew had tied up, they left in the van for the motel, stopping briefly to get something to eat.

### ***Train MSIDV 15***

The MSIDV 15 crew (Engineer, Conductor and Conductor-in-Training) went on duty at Salina, Kansas at 4:10 p.m., July 15, 2013. The train had 3 locomotives (UP7276, UP 6536, and UP6707) and consisted of 51 loads and 28 empties. The train weighed 6597 tons and was 4809 feet long.

They were delayed departing Salina because of track work just west of Salina. The crew said that they heard the LDG89 15 depart Salina before them. Several times after departing Salina, they also heard the LDG89 15 on the radio performing switching moves ahead of them. The last time they heard the LDG89 15 was when they (MSIDV 15) were near Dole (MP 250.4).

According to the post-accident interviews, the crew said that the trip was uneventful until reaching Hays at about 1:20 a.m. Approaching Hays there was a slight right hand curve. While coming through the curve the crew was looking for the distant signal (near MP 289.0) that governed the approach to the Hays siding (MP 290.79). All of the crewmembers said that they saw the signal and it was clear (green). Almost simultaneously they notice on the business track, the first track left and parallel to the main track, a rear end device attached to railroad cars flashing its red marker light. Then the engineer could see that the main track switch target was turned perpendicular to the track and the switch target reflected its red surface in the headlight of his locomotive. He immediately placed the train in emergency. The crew realized that they were entering the diverging route and could see that the second hand throw switch was also lined (the target

was perpendicular) and their train was entering the industrial spur track which was the second track to the left of the main track.

When they struck the standing cars on track 740, their train derailed and in turn the train derailed the standing cars of the LDG89 15 on the adjacent track 141.



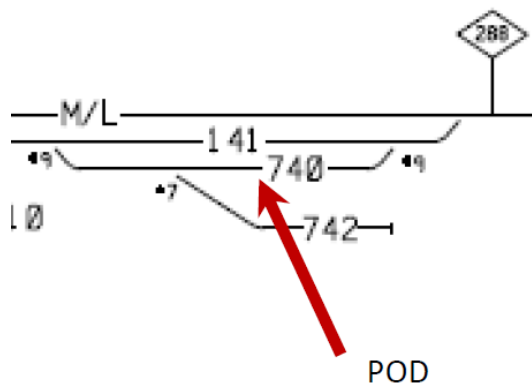
The lead locomotive (UP 7276 West) of the MSIDV 15 turned 180 degrees and ended up pointing east. It also rolled over coming to rest upside down.



The crew watched through the front locomotive window as their train collided with standing equipment in the spur track. After the collision they all had a limited recollection of the experience until the engine stopped moving. They realized that the locomotive was upside down and they needed to escape through the front window. The Conductor-in-Training was able to get out first and noticed that a fire had started. He encouraged the Engineer and Conductor to hasten their evacuation. The three of them walked (about a block away) to the road crossing at Vine Avenue and met the emergency responders.

### Post-Accident Condition of Scene

When the brakeman lined the main track switch for Train LDG89 15, he was changing the route from the main track into the passing track 141. He then walked past the switch for the storage track 740 to reach the derail on track 141.



Train LDG89-15 then entered the passing track 141.

When UPRR supervisors arrived at the accident, they documented the position of the switches and took photographs.

Figure 1 Diagram of Switches



The main track switch numbered 141, was found lined for the passing track from the main track. In this photograph, the switch is lined for the passing track and trains will diverge to the left.

Figure 2 Switch points for track 141.



The lock was found hooked in the switch for track 141 but the lock was unlocked. When this type of lock is new the key cannot be removed unless the lock is locked. However, this lock was tested and the key could be removed without the lock being locked.<sup>2</sup>

Figure 3 Switch stand and lock for track 141.



The switch for track 740 was found lined for track 740 and not for the passing track that train LDG89-15 had entered. This is the track train MSIDV 15 entered and struck the stored steel cars.

Figure 4 Switch points for track 740.



The switch for track 740 was found lined and locked for trains to enter track 740.

Figure 5 Switch stand and lock for track 740.

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<sup>2</sup> With repeated use, the mechanism that prevents the keys from being removed will wear out.

## **Operating Documents**

The crews were governed by the General Code of Operating Rules (GCOR), Sixth Edition, and effective April 7, 2010 with updates added July 2, 2013. At the time of the accident, the current timetable was UPRR Timetable No. 4, effective October 25, 2010.

The operating rules and supplements were as follows:

- General Code Of Operating Rules, Sixth Edition, Effective April 7, 2010, Updated July 2, 2013
- Union Pacific System Special Instructions, Effective July 2, 2013
- Union Pacific Railroad, Timetable No. 4, Salina Area, Sharon Springs Subdivision, Effective October 25, 2010
- Union Pacific Railroad, Safety Rules, Effective July 2, 2013
- Track Warrants and Track Bulletins for UP 7276 West (MSIDV 15)
- Track Warrants and Track Bulletins for UP 2327 West (LDG89 15)

## **Method of Operations**

Trains were authorized to occupy the main track by a Track Warrant that was issued initially at Salina. Later during the trip the trains were given updates and new Track Warrant authority directly from the train dispatcher by radio. The Track Warrant authorized the train movements from one named station to another or a designated point. Once clearing a section of track, the crew would release the track behind them to the train dispatcher.

### ***Hand Throw Switch Operations***

When placing a train on a track that connected to the main track with a hand throw switch, the crew was required to report to the train dispatcher that the switch had been restored (back to normal position for main track movement) and locked before releasing their track warrant authority on the main track.

GCOR appropriate rules:

#### **14.7 Reporting Clear of Limits**

In non-signaled territory comply with the requirements outlined in Rule 8.3 (Main Track Switches) and advise the train dispatcher:

When a hand-operated switch is used to clear the main track, except where Rule 6.13 (Yard Limits) or Rule 6.14 (Restricted Limits) are in effect, advise the train dispatcher of the position of the switch and that the switch is locked when reporting clear of track warrant limits. Train dispatcher



shall repeat the reported switch position and employee releasing the limits shall confirm to the train dispatcher this information is correct.

### **8.3 Main Track Switches**

Within TWC territory when authorized by track warrant. Track warrant protection must be provided for this condition. The switch must not be considered restored to normal position until the train dispatcher is notified by an employee at that location.

According to post-accident interviews, the brakeman said he announced that the main track switch had been returned to the normal position as well as the derail had been lined in the derailed position after the LDG89 15 was clear of the main track and sitting on the passing track (141) at Hays. Both the conductor and engineer had heard the brakeman make this announcement. The conductor in turn reported the switch was returned to the normal position to the dispatcher once he had reached the Hays yard office and he released their track warrant for the main track.

### **Crew Information**

*Mobile Phone Records* - Records were obtained for the crews of both trains. There was use of the phones during their on duty time, however, limited use is allowed by the railroad operating rules.<sup>3</sup> Other than the engineer on LDG89 15, none of the records showed usage near the times the crews were performing duties at Hays, Kansas. The engineer on train LDG89 15 stated during his interview that he called the hotel for a ride after he had cleared Vine Avenue crossing. The time stamp for this call was part of his cell phone records.

*Post-Accident Toxicological Testing* - According to Title 49 Code of Federal Regulations (CFR) Part 219 (Subpart C- Post-Accident Toxicological Testing) the crew members of train MSIDV 15 were required to submit specimens for post-accident toxicological testing. They all provided urine and blood for testing. They also performed a breath test. All of the tests had negative results.

The LDG89 15 crew was released from duty at Hays, Kansas when they tied up and went to the hotel. Once released, these employees cannot be recalled for testing per 49 CFR Part 219.203(b)(4) unless:

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<sup>3</sup> Union Pacific Railroad, System Special Instructions, July 2, 2013, Rule Revisions General Code of Operating Rules, 2.21 Electronic Devices... **B. Personal Electronic Devices** ...A railroad operating employee may use a personal cell phone only for voice communication when: Rolling and on track equipment is stopped. A safety briefing is conducted with all crew members to confirm that it will not interfere with any safety related or required duty. No member of crew will foul any track.

- a) The employees went off duty normally prior to being contacted by a supervisor and instructed to remain; and
- b) The railroad's investigation indicated a clear probability that the employees played a role in the cause or severity of the accident/incident; and
- c) The accident/incident occurred within the employee's duty tour.

The crew did not qualify under item C). The crew's duty tour ended at 1:00 a.m. and the accident occurred at about 1:20 a.m. The crew of LDG89 15 was not tested.

*Hours of Service and Rest Cycle* - Title 49 CFR Part 228 – **Hours of Service of Railroad Employees**, requires that railroad operating employees not work over 12 hours in a given shift and must have a minimum of 10 hours off duty between shifts. The UPRR crew's duty hours were within the requirements of the regulation.

*Operational Testing* - Title 49 CFR 217.9 contains specific requirements for the testing and observations of operating employees while they perform their duties. The UPRR maintains an operational testing program to monitor the performance and rules compliance of employees operating trains.

### ***Train LDG89 15 (Local Train)***

***Engineer*** –The engineer hired on the railroad 10/10/74 working as a carpenter for the Building and Bridges Department. He transferred to engine service and was promoted to engineer 09/23/77. His last certification date was 03/12/11.

The engineer had the following 6 entries in his discipline record:

- 09/21/12 Hard coupling while switching damaging cars – 5 day suspension
- 11/28/07 Hard coupling with cars – 1 day training
- 06/29/07 Unsafe switching activity – Noted in Record, no discipline
- 06/09/03 Unsafe switching activity – 5 day suspension
- 04/22/80 Failed to stop before passing a red signal – Dismissed, Reinstated 07/08/80
- 08/22/79 Late for work – Noted in Record, no discipline
- 08/17/79 Failed to report for work – Letter of Reprimand

According to the engineer's operational testing records, the engineer had been observed 115 times. He had complied with the rules appropriately 112 times and had to be "coached" by a supervisor on 3 occasions, concerning repeating radio instructions, an air brake rule, and "other efficiency tests." In the category of "switching", the engineer's record had 6 entries in the "pass" column.

*Work/Rest Cycle* - The engineer had been off on the previous Saturday and Sunday. This was his regular job with a standard on duty time of 1:00 p.m. on Mondays. Two weeks prior, the railroad had changed the on duty time from 11:00 a.m. to 1:00 p.m.

on Mondays and Wednesdays. He did not mention having an issue with fatigue during his interview.

**Conductor** - The conductor hired on the railroad 02/20/07 in train service. He was promoted to conductor 02/13/08. His last certification date was 07/11/12.

The conductor had the following entry in his discipline record:

- 08/09/08 Hard coupling while switching damaging cars – Noted in Record, no discipline

According to the conductor's operational testing records, the conductor had been observed 104 times. He had complied with the rules appropriately 101 times and had to be "coached" by a supervisor on 3 occasions concerning "other efficiency tests." In the category of "switching", the conductor's record had 4 entries in the "pass" column.

*Work/Rest Cycle* - The conductor had been off on the previous Saturday and Sunday. This was his regular job with a standard on duty time of 1:00 p.m. on Mondays. He said that he had a full night's sleep on Saturday night and Sunday night.

**Brakeman** - The brakeman hired on the railroad on 02/07/05 in train service. He was promoted to conductor 05/17/05. His last certification date was 07/11/12.

The brakeman had the following entries in his discipline record:

- 09/07/07 Derailed cars while switching – 120 day suspension
- 04/22/07 Failed to protect employment (not available for duty) – Noted in Record
- 06/24/06 Lined wrong switch for movement, damaged switch – Noted in Record
- 08/12/05 Operated through switch not lined for movement – Noted in Record

According to the brakeman's operational testing records, the brakeman had been observed 75 times. He had complied with the rules appropriately 74 times and had to be "coached" by a supervisor once concerning "other efficiency tests." In the category of "switching", the brakeman's record had 11 entries in the "pass" column.

*Work/Rest Cycle* - The brakeman had been called to fill a space on this job at 1:00 p.m. Monday. He had worked Saturday night from 9:30 p.m. until Sunday morning at 7:54 a.m. According to his interview, he had taken a nap Sunday afternoon and then slept from about 9:00 p.m. until 6:30 a.m. Monday morning.

### ***Train MSIDV 15 (Through Train)***

**Engineer** – The engineer hired on the railroad 01/31/94. He was promoted to engineer 03/14/95. His last certification date was 05/18/12.

The engineer had the following 6 entries in his discipline record:

- 07/29/08 Derailed locomotive at an open derail – 1 day training
- 08/23/07 Shoved car off end of spur track – Noted in Record, no discipline
- 12/28/98 Failed to stop before passing a red signal – Dismissed, Reinstated 09/01/99
- 09/29/98 Failed to notify Foreman and entered limits - Decertified
- 08/17/94 Failed to secure equipment, uncontrolled movement – Noted on Record

According to the engineer’s operational testing records, the engineer had been observed 90 times. He had complied with the rules appropriately 89 times and had to be “coached” by a supervisor once during an on-board assessment.

*Work/Rest Cycle* - The engineer had been gone off duty just after midnight Sunday night. He said he had been working a lot of trips but when he was off duty he ate and slept regularly. He had a full sleep cycle before being called for work Monday afternoon.

**Conductor** - The conductor hired on the railroad 01/07/08 in train service. He was promoted to conductor 3/10/08. His last certification date was 07/11/12.

The conductor had the following entry in his discipline record:

- 11/07/10 Failed to line a switch and operated equipment through switch – Noted on Record

According to the conductor’s operational testing records, the conductor had been observed 113 times. He had complied with the rules appropriately 108 times and had to be “coached” by a supervisor on 5 occasions. The coached rule references were: one for a grade crossings, one for radio rules, one during an on-board assessment, and two for “other efficiency tests.”

*Work/Rest Cycle* - The conductor had completed his last on duty time Sunday night at 10:08 p.m. He said he then had a full night’s sleep Sunday night and felt rested for the 4:10 p.m. on duty time Monday.

**Student Conductor** - The student conductor hired on the railroad 04/01/13 in train service. He was currently in On-the-Job Training (OJT). He had no records for discipline.

According to the student conductor’s operational testing records, he had been observed 22 times. He had complied with the rules appropriately 21 times and had to be “coached” by a supervisor once concerning rules relating to grade crossings.

*Work/Rest Cycle* - The student conductor had worked the previous Friday night and went off duty Saturday morning at 7:48 a.m. He slept Saturday and Sunday night and did not work on Sunday. He said he was rested for the 4:10 p.m. on duty time Monday.

**-- End ---**