



# **National Transportation Safety Board**

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

Train Derailment  
Union Pacific Railroad  
Graettinger, Iowa  
March 10, 2017 at 12:50 a.m. CST

NTSB Accident Number DCA17MR007

Operations Group Factual Report

David S. Bucher, Operations Group Chairman

## **Operations Group Members**

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## **The Accident**

NTSB Accident Number:	DCA17MR007
Date of Accident:	March 10, 2017
Time of Accident:	12:50 a.m. CST
Type of Train:	Freight Train
Railroad Owner:	Union Pacific Railroad
Train Operator:	Union Pacific Railroad
Fatalities:	None
Injuries:	None
Location of Accident:	Graettinger, Iowa

## **Accident Summary**

For a summary of the accident, refer to the Accident Summary report, within this docket, NTSB Docket DCA17MR007.

## **Accident Sequence**

### ***Union Pacific Train – No. UEGKOT 09***

The train crew of Union Pacific Railroad Company (UP) train No. UEGKOT 09 of March 9<sup>th</sup> was called for duty 4:30 p.m.<sup>1</sup> at Eagle Grove, Iowa. The crew consisted of a locomotive engineer and conductor. From Eagle Grove the train crew got into a UP contractor supplied van and was transported to Estherville, IA, where they boarded and completed brake tests and daily inspections on their three assigned locomotives. At Estherville the crew received authority from the UP train dispatcher to go to Superior, IA, which was eight (8) miles west, and pick up their train. The UEGKOT 09, consisting of three (3) lite locomotives at the time, departed Estherville at 7:36 p.m. and arrived at Superior, IA at 8:22 p.m.

Upon arrival at Superior, the crew of the UEGKOT 09 assembled their train which at the time consisted of 2 locomotives on the head end of their train followed by a buffer car, followed by ninety-nine (99) tank cars loaded with liquid ethanol. The loaded tank cars were followed by

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<sup>1</sup> All times are listed as Central Standard Time (CST)

another buffer car, and finally a single Distributed Power Unit locomotive (DPU).<sup>2, 3</sup> The loaded tank cars were followed by another buffer car, and finally a single Distributed Power Unit locomotive (DPU). Before departing Superior, the crew also set out one (1) bad order car that they had been previously notified of thus the UEGKOT 09 consisted of ninety-eight (98) loaded tank cars.

The train crew of UEGKOT 09 performed all required air brake tests, and in his interview with NTSB investigators said he departed Superior eastbound at 11:30 p.m. The UEGKOT 09 complied with all required speed limits leaving Superior. There was one temporary 10 Miles Per Hour (MPH) speed restriction between milepost 74.1 and milepost 71.25.

Approaching Milepost (MP) 57 eastbound, the train was traveling at approximately 28 MPH. The track speed limit between MP 56 and MP 57 is 30 MPH. At approximately 12:50 a.m., the train experienced an undesired emergency brake application. The train crew described the brake application as a lurch forward immediately after which both saw a bright orange flash outside the locomotive cab. Both crew members turned in their seats to see a large fireball rising into the night sky.

The locomotive engineer immediately notified the UP train dispatcher in Omaha, Nebraska via radio that the UEGKOT 09 had experienced an undesired emergency brake application and that the train had derailed, with cars piled up, with several cars on fire.

In assessing the derailment situation, the crew found that the lead 20 cars (still on the rails and attached to the lead locomotive consist) had separated from the derailed and burning cars. Because the crew feared the lead twenty (20) cars still attached to the lead locomotive consist derailed cars might also catch fire, the train crew pulled these cars approximately a mile and a half away from the burning cars. After performing this task, the crew was further asked by emergency responders to pull the rear 52 unaffected cars back from the burning cars, using the DPU locomotive on the rear of the train. After this task was accomplished, the train crew boarded a UP contractor van and was transported back to Estherville for a Federal DOT Toxicological Test, then on to Eagle Grove for final tie-up.

### **Location and Method of Operation**

The accident occurred at MP 56.5 near Graettinger, IA. MP 56.8 is located on UP's Estherville Subdivision. The Estherville Subdivision runs between Goldfield, IA and Superior, IA, for a distance of approximately 79 miles. The subdivision is primarily single main track with one passing siding. This is not an AMTRAK route. Railroad operations on the subdivision are

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<sup>2</sup> The placement requirement of hazardous material cars (placarded cars) in trains is contained in 49 CFR 174.85. A buffer car is placed between the locomotive engine and shipments to protect train crews from hazardous materials.

<sup>3</sup> On the Union Pacific Railroad, Distributed Power Unit (DPU) refers to the remotely controlled locomotives, single or multiple, located—at either intermediate points, or at the rear of a train.

controlled by Track Warrant Control out of UP's train dispatching center located in Omaha, NE. Track speed for the single main track is 30 miles per hour at the accident location.

### **Operating Rules**

Operating Rules governing the UP employees involved in the accident were the General Code of Operating Rules (Effective April 2015). Also governing train movements was the UP's Iowa Area Timetable No. 5 (Effective November 14, 2016). The UP Air Brake and Train Handling Rules (Effective May 2, 2016) also apply. Also, Instructions for Handling Hazardous Materials (Effective July 2, 2013).

Also in effect were System Special Instructions (Effective May 2, 2016)

The train crew received its Track Warrant from the Train Dispatcher in Omaha, NE, upon arriving at Estherville, IA to pick up its locomotives.

### **Operating Crew**

#### **Union Pacific Train UEGKOT 09**

Engineer: J. McDaniel

Hire: January 2005

Engineer certification: June 2015

Certification Exp: June 2018

Conductor: R. Pressler

Hire: Sept. 2003

Conductor Certification: Jan. 2017

Certification Exp: Jan. 2020

Both train crewmembers went on-duty at Eagle Grove, IA at 4:30 p.m. on March 9<sup>th</sup>, 2017. This is the first train either train crew had operated that day. Both crew members received the required off-duty rest period prior to working the day of the accident. (72 hours of Hours of Service records have been requested from UP)

### **Train Dispatcher**

The UP Train Dispatcher controlling the line involved with the derailment was located at the UP Harriman Dispatching Center in Omaha, NE. He communicated with the involved train crew via railroad radio. Based on the records maintained at the dispatching center, and an interview conducted with the train dispatcher, there were no communication issues. The dispatcher received the emergency call and notified center managers, who immediately initiated an emergency response.

## **Train Consist**

UP Train symbol UEGKOT 09 consisted of three (3) locomotives, two (2) buffer cars, and 98 loaded tank cars (for additional details on equipment type, reference NTSB's Mechanical Group Report). On the head of the train was lead locomotive UP 5666 and locomotive UP 8376. The lead locomotive was equipped with a remote-control system for the control of DPU (UP 8037) located on the rear of the train.<sup>4</sup> The lead two locomotives were followed by one (1) buffer car, then 98 loaded tank cars. Following the loaded tank cars was another buffer car and finally the DPU locomotive UP 8037. The train equipment lined-up, as follows:

UP 5666 (East End)(Head End)(Controlling Locomotive)

UP 8376

Buffer Car

99 loaded tank cars

Buffer Car

UP 8037 (West End)(Rear Locomotive)

## **Employee Interviews**

The NTSB Graettinger accident Operations Group conducted 5 operating employee interviews as part of the field investigation. Below are bullets from those interviews.

Name: Mike Weland

Title: Locomotive Engineer on Local Train that operated through the accident area the day before the accident

Date/Time of Interview: 3/11/2017, 12:40 p.m.

- Said he operated a local train through the accident area the day before the accident.
- Said he operated a train with 3 or 4 empty cars west to Superior, and brought back 11 loaded cars east.
- Said he noticed nothing unusual when he operated through the accident area
- Said that weather conditions were sunny with temperatures in the 20's
- Said he has been the engineer on the Local Train since July of 2016.
- Said the Local operates through the accident area 3 or 4 times a week

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<sup>4</sup> When used as a DUP, the rear locomotive can be remotely controlled, i.e., braking and power, by the lead locomotive.

Name: Brian Christensen

Title: Conductor on Local Train that operated through the accident area the day before the accident

Date/Time of Interview: 3/11/2017, 12:55 p.m.

- Said that he was an Extra Board Conductor
- Said that he does not work on the Local run to Superior regularly.
- Said he had worked this job 3 times within the last month
- Said that the day before the accident, the job took empty cars to Superior and brought out 11 loaded cars
- Said he noticed nothing unusual when the train operated through the accident area.
- Said that the weather was clear, and the temperature was about 20 degrees

Name: James McDaniel

Title: Locomotive Engineer on UEGKOT 09, the day of the accident

Date/Time of Interview: 3/11/2017, 1:15 p.m.

- Said that he was called for the UEGKOT 09 at 4:30 p.m. on the 9<sup>th</sup>
- Said that he and his conductor taxied from Eagle Grove to Estherville to pick up their lite power
- Said they departed Estherville to go to Superior to pick up their train
- Said they assembled their train at Superior but had to switch out one shop car.
- Said that they made the required air brake test and departed east
- Said that the train was operating between 25 and 28 MPH at the time of the emergency air brake application
- Said he felt a lurch forward from the brakes applying and saw a flash outside the cab window.
- Said he turned in his seat and saw derailed cars and fire
- Said he called out the emergency on the radio and dialed up the train dispatcher
- Said the speed limit on the track at the accident location is 30 MPH
- Said that following the accident he assisted emergency responder with moving the un-damaged cars away from the fire
- Said that the train was operating smoothly approaching the accident site
- Said he had operated similar trains through the area in the past.

Name: Rod Pressler

Title: Conductor on UEGKOT 09, the day of the accident

Date/Time of Interview: 3/11/2017, 2:15 p.m.

- Said he arrived at Eagle Grove at 4:30 p.m. for the UEGKOT 09
- Said that he and his engineer cabled from Eagle Grove to Estherville for their power
- Said that the crew picked up their train at Superior.
- Said that they completed the required air brake test and started east toward Eagle Grove
- Said he noted the time of the accident as 12:50 a.m.
- Said that both he and the engineer had been lurched forward by the emergency air brake application.
- Said he had looked back and seen a large fire ball rising into the sky
- Said that he had seen that the train had broken apart
- Said train had separated about 15 car lengths from derailed cars
- Said he had assisted the local fire department by closing the angle cock on the last good car so the engineer could pull the cars away from the fire
- Said it was only about 10 minutes until emergency responder arrived on scene.
- Said he thought it was about 19 degrees at the time of the accident

Name: Bill Freeman

Title: Union Pacific Train Dispatcher, Omaha, NE the day before the accident

Date/Time of Interview: 8/1/2017, 10:40 a.m.

- Stated that he started work at 10:20 (PM) (the day before the accident)
- Said he covered an area from the Missouri Valley up to the Twin Cities
- Also said that his job handles most of the Iowa branch lines
- Said the UEGKOT 09 had a warrant, box 7 for the whole Estherville Sub.
- Said he got an Emergency Alarm at 12:47 a.m.
- Said the UP 5666 reported that their train had separated at milepost 57
- Said the train crew told him they were south of the Des Moines River
- Said his control center manager was notified immediately
- Said he has been a dispatcher since 1990
- Said that there were occasional issues of radio bleed-over in the Graettinger subdivision<sup>5</sup>
- Said he has not had any other issues with ethanol trains

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<sup>5</sup> Bleed-over refers to a radio signal on an adjacent frequency "bleeding over" or leaking into the channel you're listening to and has nothing to do with overload, intermodulation or intermediate frequency (IF) images but rather insufficient receiver selectivity to reject it.



- Said that if a crew reported rough track, a 10 mph speed restriction was issued for that location, and Maintenance of way was notified of the location

### **Federal Oversight**

Federal oversight of the Union Pacific Railroad is provided by the Federal Railroad Administration (FRA), which is part of the U.S. Department of Transportation (DOT). The FRA employs multiple field inspectors which conduct field inspections on Union Pacific property on a scheduled and random basis. FRA operational field inspectors monitor the railroad's compliance with DOT regulations per 49 CFR Parts 200 to 299. FRA also conducts periodic records review on Union Pacific for various Federal record keeping requirements.

### **Employee Training and Qualifications**

Federal regulations 49 CFR Part 240 and 242 require that locomotive engineers and conductors be trained and certified under a federally approved program. For these training programs, employees must pass required testing to confirm that they are qualified to perform their assigned duties. Records provided to NTSB, as part of the accident investigation, indicate that Union Pacific had approved training plans in place, and that the train crews involved in this accident had received the required training by the railroad.

### **Efficiency Testing**

Federal regulations, 49 CFR Part 217, require that regulated railroads have a program to periodically conduct operational tests and inspections to determine the extent of compliance with its code of operating rules, safety rules, timetables, and timetable special instructions. The Federal Railroad Administration last reviewed the Union Pacific's Efficiency Testing data, approximately 30 days before the accident.

### **Radio Communications**

The conductor of the UEGKOT 09 involved in the accident, was issued and had in his possession, a working "hand held" portable radio. The lead locomotive was equipped with a working radio. All radios in use by the crew had been tested previously and were working at the time of the accident.

### **Personal Electronic Devices**

A review of electronic records shows that neither crew member had used a personal electronic device while on duty the day of the accident.

**End of Report**

David S. Bucher

NTSB Rail Accident Investigator