

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2996
UNION PACIFIC RAILROAD COMPANY
REPORT IN RE ACCIDENT
AT HOT LAKE, OREG., ON
JUNE 6, 1946

SUMMARY

Railroad: Union Pacific

Date: June 6, 1946

Location: Hot Lake, Oreg.

Kind of accident: Head-end collision

Trains involved: Passenger : Passenger

Train numbers: 105 : 18

Engine numbers: Diesel-electric units : 2700-809
5-M-1 and 5-M-2

Consists: 15 cars : 17 cars

Estimated speeds: Standing : 15 m. p. h.

Operation: Timetable, train orders and
automatic block-signal system

Track: Single; tangent; 0.02 percent
ascending grade eastward

Weather: Clear

Time: 3:01 a. m.

Casualties: 1 killed; 115 injured

Cause: Failure properly to control speed
of train in accordance with sig-
nal indications and approaching
meeting point

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2996

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

UNION PACIFIC RAILROAD COMPANY

July 30, 1946.

Accident at Hot Lake Oreg., on June 6, 1946, caused by
failure properly to control speed of train in
accordance with signal indications and approaching
a meeting point.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

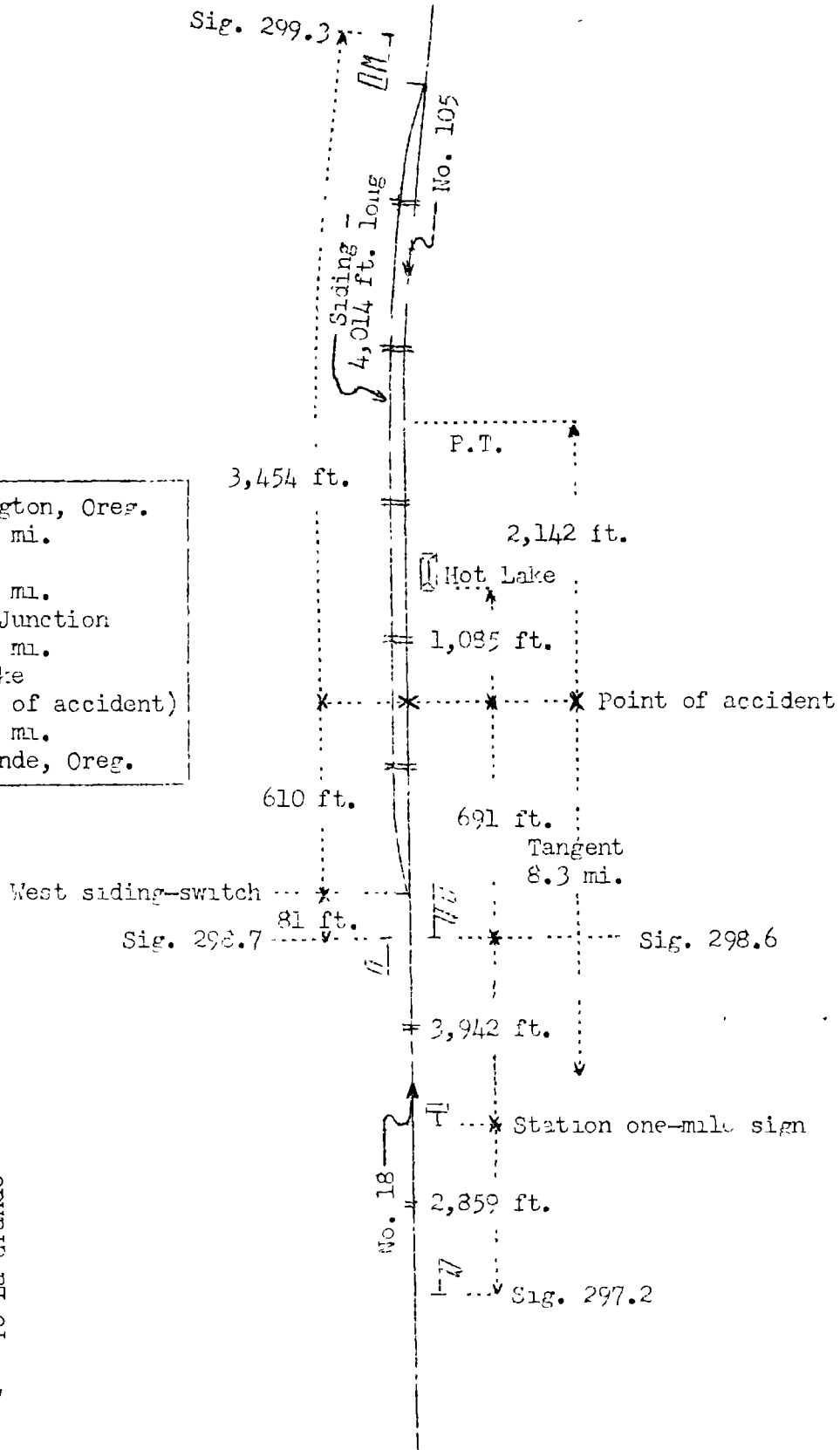
On June 6, 1946, there was a head-end collision between two passenger trains on the Union Pacific Railroad at Hot Lake, Oreg., which resulted in the death of 1 employee, and the injury of 104 passengers, 5 Pullman employees, and 6 dining-car employees. This accident was investigated in conjunction with a representative of the Public Utilities Commissioner of Oregon.

¹Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

To Huntington ↑

↓ To La Grande

- Huntington, Oreg. 47.4 mi.
- Baker 39.8 mi.
- Union Junction 3.2 mi.
- X Hot Lake (Point of accident) 9.2 mi.
- La Grande, Oreg.



Inv. No. 2996
 Union Pacific Railroad
 Hot Lake, Oreg.
 June 6, 1946

Location of Accident and Method of Operation

This accident occurred on that part of the Oregon Division extending between Huntington and La Grande, Oreg., 99.6 miles, a single-track line. In the vicinity of the point of accident trains are operated by timetable, train orders and an automatic block-signal system. At Hot Lake, 90.4 miles west of Huntington, a siding 4,014 feet in length parallels the main track on the north. The west switch of this siding is 1,695 feet west of the station. The accident occurred on the main track at a point 310 feet east of the west siding-switch. The main track is tangent throughout a distance of 3.3 miles immediately west of the point of accident and 3,142 feet eastward. The grade for east-bound trains varies between 0.026 percent and 0.64 percent descending throughout a distance of 3.83 miles, then it is 0.02 percent ascending 3,255 feet to the point of accident and 1.28 miles eastward.

The automatic block-signal system is arranged on the absolute-permissive principle and consists of double-location signals near the ends of sidings and intermediate signals between stations. Signals 299.3 and 297.2, governing west-bound movements, are, respectively, 3,454 feet east and 691 feet west of the point of accident. Signals 298.7 and 298.6, governing east-bound movements are, respectively, 1.42 miles and 691 feet west of the point of accident. Signals 298.7 and 297.2 are of the one-arm lower-quadrant, semaphore type, and signals 299.3 and 298.6 are of the two-arm lower-quadrant, semaphore type. These signals are approach-lighted. The involved night aspects and the corresponding indications and names of these signals are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
299.3	Green-over- yellow	Immediately reduce speed to 20 miles per hour and as much slower as necessary in order to be able to stop before passing the next signal.	Approach signal.
297.2	Yellow		
298.7	Red	Stop.	Stop signal.
298.6	Red-over- yellow	Stop, then proceed at restricted speed. See Rule 509(B).	Stop and proceed signal.

Operating rules read in part as follows:

DEFINITIONS.

* * *

Restricted Speed.--Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

14. ENGINE WHISTLE SIGNALS.

* * *

The signals prescribed are illustrated by "o" for short sounds; "___" for longer sounds. * * *

* * *

Sound.	Indication.
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* * *

(n) ___ ___ o	Approaching meeting or waiting points. Answer to 16 (1). See Rule S-90.
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16. COMMUNICATING SIGNALS.

* * *

Sound.	Indication.
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* * *

(1) _____	* * * approaching meeting or waiting points. See Rule S-90.
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* * *

17 (B). * * *

Headlights should be dimmed under conditions outlined below:

* * *

While standing on main track awaiting arrival of an approaching train that is to take siding, but not until approaching train dims its headlight as a signal for the standing train to do likewise:

* * *

S-71. A train is superior to another train by right, class or direction.

* * *

Direction is superior as between trains of the same class.

S-72. * * *

Trains in the direction specified by the timetable are superior to trains of the same class in the opposite direction.

S-89. At meeting points, the inferior train must take the siding * * *

The inferior train must pull into the siding when practicable. * * *

S-90. On trains equipped with communicating signal system the conductor must give signal 16 (1) to the engineer immediately after passing the last station but not less than one mile preceding a schedule meeting point with a train of the same or superior class or a point where by train order it is to meet, or has to wait for, an opposing train. The engineer will immediately reply with signal 14 (n). If the engineer fails to answer by signal 14 (n), the conductor must take immediate action to stop the train.

* * *

FORMS OF TRAIN ORDERS.

* * *

S-A.

Fixing Meeting Points for Opposing Trains.

(1.) No 1 meet No 2 at B.

* * *

* * *

Trains receiving these orders will run with respect to each other to the designated points and there meet in the manner prescribed by the rules.

509 (B). When a train is stopped by a Stop and proceed indication, it may proceed:

* * * at restricted speed through the entire block. * * *

* * *

Time-table special instructions provide that west-bound trains are superior to east-bound trains of the same class.

The maximum authorized speed for the east-bound train was 50 miles per hour.

Description of Accident

At Baker, 43 miles east of Hot Lake, the crew of No. 105, a west-bound first-class passenger train, received copies of train order No. 408 reading as follows:

No. 105 meet No. 18 at Hot Lake.

No. 105 consisted of Diesel-electric units 5-M-1 and 5-M-2, one baggage car, three coaches, two dining cars, eight Pullman sleeping cars and one parlor-lounge car, in the order named. These cars were of steel and aluminum construction. This train departed from Baker at 2:12 a. m., 7 minutes late, passed Union Junction, the last open office, 3.2 miles east of Hot Lake, at 2:55 a. m., 1 minute late, passed signal 299.3, which displayed approach, and stopped on the main track between the siding switches at Hot Lake about 3:01 a. m., with the front end standing 691 feet east of signal 298.7, which displayed stop. About 30 seconds later No. 105 was struck by No. 18.

At La Grande, 9.2 miles west of Hot Lake, the crew of No. 18, an east-bound first-class passenger train, received copies of train order No. 408. No. 18 consisted of steam engines 2700 and 309, one mail car, one storage-mail car, five baggage cars, two troop sleeping cars, three coaches, two Pullman sleeping cars, one dining car and two Pullman sleeping cars, in the order named. All cars were of steel construction. This train departed from La Grande at 2:51 a. m., 5 minutes late, passed signal 297.2, which displayed approach, passed signal 298.6, which displayed stop-then-proceed-at-restricted-speed, passed the west siding-switch at Hot Lake, where it was required to enter the siding to meet No. 105, and while moving at an estimated speed of 15 miles per hour it struck No. 105 at a point 610 feet east of the west siding-switch.

The force of the impact moved No. 105 backward about 50 feet. The front wheels of the front truck and the rear truck of the first Diesel-electric unit, both trucks of the second Diesel-electric unit and the front truck of the first car of No. 105 were derailed. The front end of the first Diesel-electric unit was badly damaged and the second unit was slightly damaged. The rear truck of the tender of the first engine of No. 18 was derailed. The body of the tender was raised and the cab of the first engine was crushed. The front ends of both engines and the rear of the tender of the first engine were badly damaged, and the tenth and the fifteenth cars were slightly damaged.

The weather was clear at the time of the accident, which occurred about 3:01 a. m.

The front brakeman of No. 18, who was on the first engine, was killed.

Engine 2700, the first engine of No. 18, is provided with two 8-1/2-inch cross-compound air compressors and No. 6-ET brake equipment. The brake-pipe feed valve was adjusted to supply 90 pounds brake-pipe pressure. Vent valves are provided on the engine and the tender of engine 809, the second engine of No. 18, to insure the propagation of emergency application of the brake-system. All cars of the train were equipped with control valves capable of emergency application following full-service application of the brakes.

Discussion

The crew of each train held copies of train order No. 408, which established Hot Lake as the meeting point between No. 105, a west-bound first-class train, and No. 18, an east-bound first-class train. No. 18 was inferior by direction, and, under the rules, this train was required to enter the siding at Hot Lake at the west switch, and to remain clear of the main track until No. 105 had been met.

No. 105 stopped on the main track 391 feet east of signal 298.7, which displayed stop, and 610 feet east of the west siding-switch, in compliance with the meet order. About 30 seconds later No. 105 was struck by No. 18. The headlight of the first unit of the Diesel-electric engine of No. 105 was lighted brightly.

As No. 18 was approaching Hot Lake the speed was about 50 miles per hour. The headlight of the first engine was lighted brightly. The brakes of this train, which were in the charge of the engineer of the first engine, had been tested and had functioned properly en route. The enginemen of both engines and the front brakeman, who was on the first engine, were maintaining a lookout ahead. The other members of the train crew were in various locations throughout the cars of the train. These employees received train order No. 408 about 20 minutes prior to the time the accident occurred. They understood that their train was required to enter the siding at Hot Lake at the west switch to meet No. 105. The conductor sounded the meeting-point signal on the train signal system, and the engineer of the first engine sounded the acknowledging signal on the engine whistle about 4 miles west of Hot Lake. The enginemen of both engines said they observed the yellow aspect displayed by signal 297.2 and the red-over-yellow aspect displayed by signal 298.6, and they called the indications. They understood that the yellow aspect displayed by signal 297.2 required the speed of their train to be reduced immediately and to be not in excess of 20 miles per hour, and their train to be operated so that it could be stopped short of signal 298.6. The engineer of the first engine said that when his train was about 2 miles west of the west siding-switch he made an 8-pound brake-pipe reduction, which was not released, then he moved the brake valve to lap position. When the engine was about 4,000 feet west of signal 298.6, the speed was about

45 miles per hour, and he made a further brake-pipe reduction of 7 pounds, which he estimated reduced the speed to about 30 miles per hour. He thought he had the train under proper control and that his engine would stop short of signal 298.6 and the west siding-switch but, when the engine was about 2,000 feet west of signal 298.6, he realized that the speed was excessive. Then he moved the brake valve to emergency position and placed the reverse lever in position for backward motion in an attempt to stop short of the signal. However, the train was not stopped and the speed was about 15 miles per hour when the collision occurred. After the accident there was no condition found that would prevent the proper application of the train brakes. The engineer of the second engine, who was regularly assigned to No. 18, said that he observed by the gauge that the initial brake-pipe reduction was 10 pounds and no further reduction was made until the emergency application occurred. This engineer said that when his engine was about 4,000 feet west of the west siding-switch he realized that the speed was excessive and he fully applied the engine and tender brakes of his engine and opened the sander valve. Although he could have taken charge of the train-brake system and made an emergency application of the brakes, he thought the action he took was sufficient. He said that ordinarily in braking a train of the same characteristics as No. 18, a heavier initial brake-pipe reduction should have been made. The engineer of the first engine is assigned to irregular service, and his last trip in passenger service previous to the trip involved was about two months prior to the day of the accident. The engines of No. 18 were not equipped with speedometers. The conductor and the flagman of No. 18 said that when the meeting-point signal was acknowledged by the engineer they thought the speed of their train would be properly controlled. They were not aware of anything being wrong until the collision occurred.

Cause

It is found that this accident was caused by failure properly to control speed of train in accordance with signal indications and approaching a meeting point.

Dated at Washington, D. C., this thirtieth day of July, 1946.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.