

Inv-2346

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
NORTHERN PACIFIC RAILWAY

BUCODA, WASH.

APRIL 27, 1939

INVESTIGATION NO. 2346

SUMMARY

Inv-2346

Railway: Northern Pacific
Date: April 27, 1939
Location: Bucoda, Wash.
Kind of accident: Collision at highway grade crossing
Equipment involved: Passenger train :Log truck
Train number: 458
Engine number: 7866
Consist: 12 cars
Speed: 25-70 m.p.h. : 5-30 m.p.h.
Operation: Timetable, train orders and automatic block-signal system; crossing protected by flashing-light signals
Track: Double; tangent 2,817 feet, then 2° right curve 119 feet to crossing and beyond; grade slightly descending southward
Highway: Tangent; crosses tracks at right angles; 4 percent ascending grade
Weather: Clear and sun shining
Time: 6:35 p.m.
Casualties: 3 killed, 25 injured
Cause: Truck driven upon railroad crossing immediately in front of approaching train, in disregard of signals indicating approach of train

June 14, 1939.

To the Commission:

On April 27, 1939, there was a derailment of a Union Pacific passenger train on the Northern Pacific Railway as a result of striking an automobile log truck with trailer at a street crossing at Bucoda, Wash., which resulted in the death of the truck driver and two railroad employees, and the injury of 25 passengers. This accident was investigated in conjunction with the State of Washington Department of Labor and Industries.

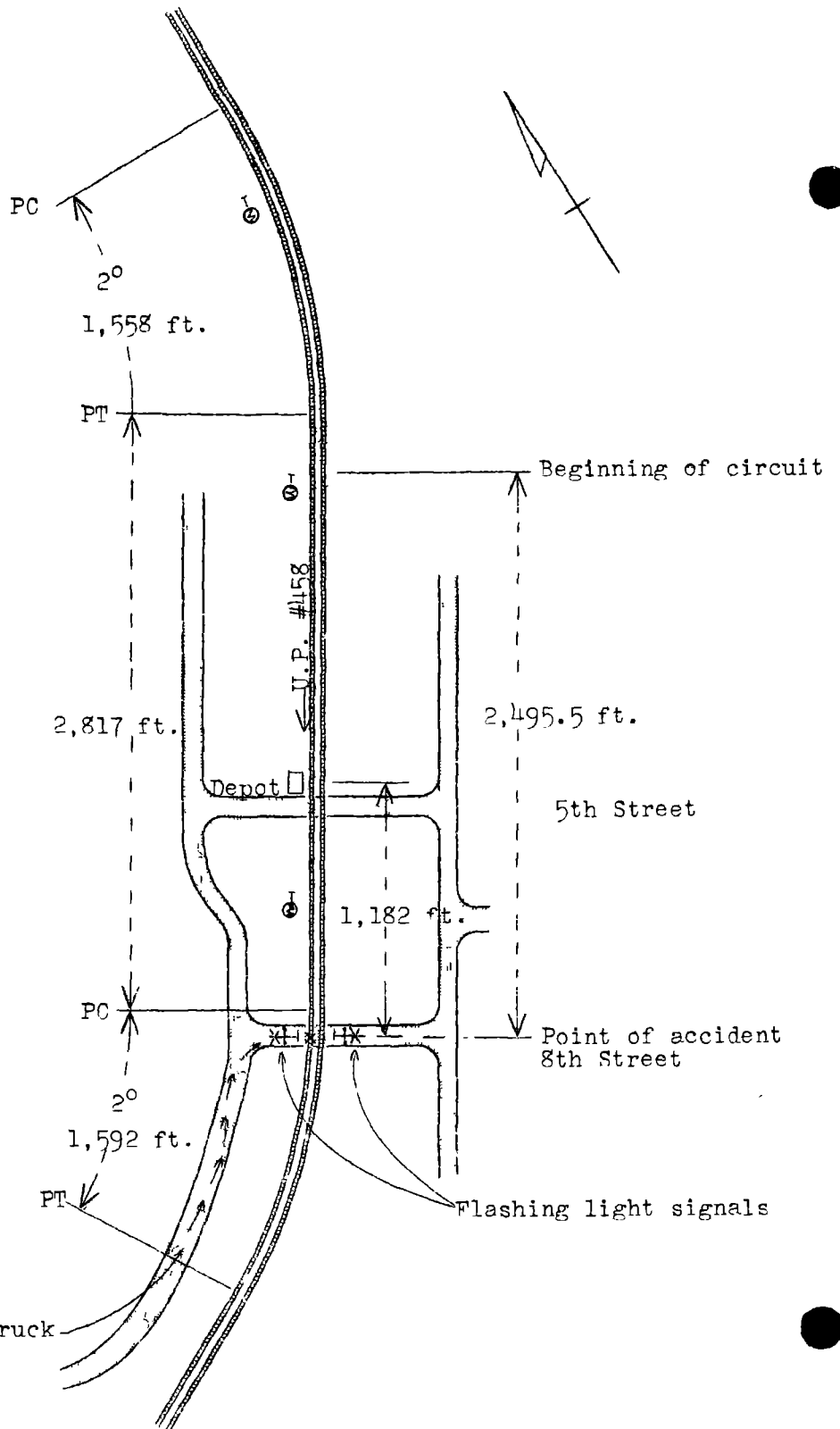
Location and Method of Operation

This accident occurred on that part of the Tacoma Division designated as the Third Sub-Division which extends between Tacoma and Vancouver, Wash., a distance of 136.4 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders, and an automatic block-signal system. This track is used jointly by the Northern Pacific, the Union Pacific, and the Great Northern. The Northern Pacific is the operating company; the train involved was manned by Union Pacific employees.

The accident occurred on the southward main track, according to compass directions, or the eastward track, according to time-table directions, at a highway grade crossing, known as 8th Street crossing, located 1,182 feet south of the depot; the highway crosses the tracks at right angles. Approaching from the north on the railroad there is a 2° curve to the right 1,558 feet long, then a tangent 2,817 feet long, followed by a 2° curve to the right 1,592 feet long; the accident occurred on the last-mentioned curve at a point 119 feet from its northern end. The grade for south-bound trains is slightly descending. Whistle boards are located 3,650, 2,496, and 525 feet, respectively, north of the crossing.

Thurston County highway parallels the railroad on the west, the center-line of the highway being 68.5 feet from the center-line of the track at the point where 8th Street connects with the highway and extends eastward therefrom. Approaching from the south on the highway the grade is descending about 1,300 feet to within about 100 feet of the crossing, then from the right-angle turn at 8th Street the grade is about 4 percent ascending to the crossing, and level over the tracks. The highway is a hard-surfaced black-top road, and is maintained in good condition; 8th Street is hard-surfaced and the crossing, which is planked and well

o	Tacoma, Wash.
	28.2 mi.
o	St. Clair
	6.7 mi.
o	East Olympia
	8.1 mi.
o	Tenino
	3.7 mi.
X	Bucoda (P of A)
	89.7 mi.
o	Vancouver, Wash.



Inv. No. 2746
 Northern Pacific Ry.
 Bucoda, Wash.
 April 27, 1939

maintained, is 40 feet wide.

The crossing is protected by standard grade-crossing flashing-light signals mounted on diamond-shaped concrete islands $7\frac{1}{2}$ feet long by $4\frac{1}{2}$ feet wide by 2 feet high; the signals are located in the center of 8th Street, one on each side of the crossing and 14 feet 4 inches from the center line of the adjacent track; four lights are visible to automobile drivers from both directions. The flashing lights are located 7 feet 10 inches above the surface of the street. On each island there are two foundation yellow marker lights located near the outer edges of the concrete islands. The crossing signal control circuit for south-bound trains extends a distance of 2,495.5 feet north of the crossing; after a train enters upon this circuit the lights flash until the train passes over the crossing. A cross-bar sign, reading "RAILROAD CROSSING," is mounted on the mast above the lights and beneath the lights there is another sign, reading "2 TRACKS."

Just north of the crossing the railroad tracks are located in a cut, the west embankment of which is 9 feet 1 inch high and is covered with bushes about 2 feet high. The highway at 8th Street is about 4 feet lower than the tracks and a driver's view of an approaching south-bound train is materially obstructed. However, the flashing lights were in full view of a driver, and, furthermore, from a point 25 feet west of the crossing there is a clear view of 1,500 feet of track toward the north. From the engine-man's side of the cab of a southbound engine, the view of a northward truck turning from the highway eastward into 8th Street is restricted until the engine reaches a point about 400 feet north of the crossing.

The motor vehicle laws of the State of Washington provide in part as follows:

"Whenever any person operating a vehicle approaching any railroad grade crossing *** and a clearly visible electrical *** signal device is in operation and gives warning of the immediate approach of any train *** the operator of such vehicle shall stop within 50 feet *** but not less than 20 feet, from such railroad *** and shall not proceed until he can do so safely. The operator of any vehicle shall stop his vehicle and remain standing and not traverse any railroad grade crossing ***"

when *** electrical signal gives or continues to give a signal of the approach *** of any train ***."

Rule 14(1) of the operating rules provides that approaching public crossings at grade two long, one short and one long blasts of the whistle must be sounded and must be prolonged or repeated until the engine has passed over the crossing. An ordinance prohibits trains to move through Bucoda at a greater speed than 25 miles per hour. The maximum authorized speed over this subdivision and over the highway crossing involved is 60 miles and 25 miles per hour, respectively.

The weather was clear at the time of the accident, which occurred about 6:35 p.m.

Description

No. 458, a south-bound passenger train, according to compass directions, consisted of two baggage-express cars, one mail car, four coaches, one Pullman tourist car, one dining car, two Pullman sleeping cars, and one parlor car, in the order named, all of all-steel construction, hauled by engine 7866, and was in charge of Conductor Rossi and Engineman Batey. This train passed St. Clair at 6:09 p.m., according to the train sheet, one minute late, and while passing through Bucoda, 18.5 miles distant, it struck a tractor log truck at 8th Street crossing while traveling at a speed variously estimated to have been between 25 and 70 miles per hour.

The log truck involved was a 1937-model, 6-cylinder, 3-ton International tractor, with dual rear tires and an enclosed cab, and was owned and driven by Herman Vollman, Mayfield, Wash. The semi-trailer was equipped with a Trojan dual axle and 8 tires, and with a coupling pole which was attached to the rear of the tractor. The overall length of the tractor and the trailer was 48.8 feet and at the time of the accident the truck was carrying three logs that measured from 24 to 39 inches in diameter and 41 feet in length, the load of about 33,500 pounds being distributed equally over the tractor and the trailer. The truck, proceeding northward on the highway, made a wide right turn eastward into 8th Street, passed the flashing-light crossing signal without stopping, and was moving over the crossing at a speed variously estimated to have been from 3 to 30 miles per hour when it was struck by No. 458.

The logs were struck about in the middle, the tractor was thrown east of the tracks and south of the crossing, and the semi-trailer and logs were thrown west of the tracks and south of the crossing. A battery house, located a few feet southwest of the crossing, was demolished.

The first mark of derailment was a flange mark on the left rail at the seventh tie south of the south line of the crossing. The engine stopped on its left side at a point about 630 feet south of the crossing, fouling both tracks. The tender stopped on its side behind the engine and across both tracks. The first car stopped across the northward track, with its rear end near the southward track and the forward end 20 feet east of the northward track. The second, third, fourth, fifth, and sixth cars stopped practically in line with the track. The forward truck of the seventh car was derailed. The employees killed were the engineman and the fireman.

Summary of Evidence

Conductor Rossi stated that the air brakes had been tested and functioned properly en route; the speed limit was not exceeded at any point. The last stop was at East Olympia, 11.8 miles north of Bucoda, and his train left there at 6:20 p.m. Approaching Bucoda he was in the fourth car and noticed that north of the station the usual air-brake application was made and then released. Immediately afterwards an emergency application was made, followed by a jar as though something had been struck, which indicated that the engineman saw the log truck and applied the brakes in emergency before the collision. The proper whistle signals were sounded for Bucoda and the engine bell was ringing. He knew that the speed limit through Bucoda was 25 miles per hour; he was busily occupied at this point and could not give an accurate estimate of the speed, but he thought it was about 25 miles per hour and the same when the impact occurred, which was at 6:35 p.m. He stated that at Seattle the engineman appeared to be normal. He had never been criticized for exceeding the speed limit at any point.

Head Brakeman Leithe was in the fourth car. He estimated that the speed was about 45 or 50 miles per hour when the usual air-brake application was made north of the station; after the brakes were released the speed was between 25 and 35 miles per hour; then the emergency application was made and the speed was 25 miles per hour when the accident occurred. He said that approaching Bucoda the proper engine whistle signals were sounded.

Flagman Karr was on the rear platform of the last car. His statement corroborated in substance those of the conductor and the head brakeman as to the way the train was handled approaching Bucoda. He estimated that the speed was about 35 miles per hour when the air brakes were applied in emergency just prior to the accident and said that the train stopped at 6:35 p.m., at which time it was daylight and the sun was shining. He stated that in addition to hearing the proper engine whistle signals sounded for the station and two crossings at Bucoda, he also heard an alarm signal of short blasts given on the whistle.

Railway Post Office Clerk Hardy was looking ahead while standing at the open door of the rear mail compartment of the third car. He estimated the speed to have been between 40 and 45 miles per hour when approaching Bucoda. The air brakes were applied in emergency and he saw the log truck drive upon the track immediately in front of the engine. About 15 or 20 minutes after the accident he walked back toward the depot in company with another railway post-office clerk and they commented on the fact that the flashing-light crossing signal involved was burning, but it was not flashing and only one light was burning. He stated that the proper engine whistle signals were sounded for Bucoda.

The estimates of various other persons of the speed at the time of the accident, including an office engineer, railway mail clerks, express company employees and dining car employees on the train, ranged from 35 to 45 miles per hour. Some of them heard the engine whistle sounded approaching Bucoda. About five minutes after the accident the office engineer observed that the crossing signal involved was burning, but it was not flashing.

District Engineer Hayward stated that the three logs on the truck had a total volume of approximately 5,000 feet board measure.

Basing their opinions on the distance the train traveled after the impact, the manner in which it stopped and the condition of the wreckage, officials of the railroad estimated the speed of the train at the time of the accident to have been between 25 and 40 miles per hour. These officials stated that the air-brake application made by southward trains approaching Bucoda is for the purpose of reducing speed through the town as required.

Miss Gladys Davies, switch-board operator at Bucoda, was standing in the doorway of the telephone office, located about 180 feet east of the tracks and 650 feet north of 8th

Street, and saw the log truck approach at a speed of about 30 miles per hour. She heard the crossing bell ringing before the train came into view, but could not say whether the flashing lights were working either before or after the accident. The train approached at the usual rate of speed, the engine whistle was sounded, including an alarm signal just before the impact, but she could not say whether the engine bell was ringing. The truck did not stop but proceeded upon the crossing immediately in front of the train and was struck about in the middle of the logs. The weather was clear and the sun was shining.

Mrs. Ione Brozini, who lives on the west side of the highway and about one-half block south of 8th Street, had a clear view of the crossing. She said the truck involved passed her house at a speed of about 50 miles per hour, then turned to the right into 8th Street and continued moving. There was no indication of slowing up or of shifting gears until the truck reached the crossing, at which time its brakes squeaked and then the accident occurred. The speed of the train was about 60 miles per hour, the flashing lights at the crossing were working, and the engine whistle was sounded before the impact.

Guy Cooper, operator of a filling station located about 75 feet east of the tracks and 375 feet north of 8th Street, stated that the proper engine whistle signals were sounded, also an alarm signal. The speed of the train was between 40 and 50 miles per hour, and the brakes were applied before the impact occurred. His wife gave similar testimony.

Thomas Churchill, 17-year-old high school student, was attending the mailpouch and was watching the mail crane located on the west side of the tracks and about 200 feet north of the crossing. The train was whistling as it approached, and the log truck was making considerable noise. Apparently the truck driver was endeavoring to shift to a lower gear and the truck moved upon the crossing immediately in front of the train at a speed of about 3 miles per hour. It appeared as though the truck driver tried to open his cab door about the time the impact occurred. Before the accident the flashing lights at the crossing were working.

Stanley Ozbolt, Jr., 15-year-old high school student, was standing at a point where he had a clear view of the crossing. He said that the speed of the train was about 65 or 70 miles per hour, and that as the log truck approached the driver shifted gears and moved slowly upon the crossing and then the collision occurred. No other automobile was

using the crossing in either direction immediately prior to the accident.

I. Bunch, resident, gave a statement to the effect that he was in his automobile traveling on the highway in the same direction as the train. When he reached 8th Street he was compelled to stop his car because the approaching log truck crossed over to the left side of the highway in order to make a wide right turn into 8th Street. Mr. Bunch stated that the engine whistle was being sounded, the crossing bell was ringing, the flashing signals were functioning and the log truck was driven upon the crossing without stopping.

John Melton, resident, was standing near Cooper's filling station and saw the train approaching and heard the engine whistle sounded continuously. The flashing lights were working and the crossing bell was ringing. The log truck was driven on the crossing without stopping, and the brakes on the train were applied.

Iver Floe, contractor, stated that the truck driver involved was hauling logs for him. The driver was about 48 years old, had driven log trucks for several years, and was considered competent. The driver went to work about 8 a.m. the day of the accident; he was making his third trip from the woods, about 28 miles from Bucoda, and had covered a distance of about 140 miles at the time of the accident.

Signal Maintainer Aubuchon arrived at the scene of the accident about 1½ hours after its occurrence. At that time the cars in the train spanned the crossing. Instead of two lights in each signal flashing alternately there was only one light in each signal burning, because of damage sustained by the relay house in the accident. Later, when repairs had been made, the flashing lights functioned properly.

Supervisor of Signals Hansen stated that the flashing-light signals involved were installed in July 1931. The installation complied with the recommended practice of the Association of American Railroads which requires that automatic signal devices used to indicate the approach of trains shall so indicate for not less than 20 seconds before the arrival of the fastest train operated over the crossing. The track circuit for southward trains extends to a point 2,495.5 feet north of 8th Street crossing and a train traveling at a speed of 25 miles per hour will operate the flashing-light signals for 68 seconds before reaching the crossing, and at 60 miles per hour, the maximum authorized speed on this subdivision, for 28 seconds. The battery house was

damaged as a result of the accident and the flashing-light relay was knocked out of balance, which accounted for one light burning continuously in each signal after the accident, instead of two lights flashing. In his opinion the track circuit extended far enough to insure adequate protection at the crossing, and he did not think that additional protection would be provided by extending it farther.

Observations of the Commission's Inspectors

The Commission's inspectors participated in a traffic check at the crossing involved from 6 a.m. to 10 p.m. on May 1. During this period 351 private cars, 103 trucks and 18 logging trucks, or a total of 472 vehicles, passed over the crossing. Six of the logging trucks were checked as to the time consumed from the instant they started after stopping for the crossing until the instant they cleared the southward track and this time averaged 23 seconds.

After the accident, inspection was made of the truck involved, but owing to its damaged condition it could not be determined which gear was being used when the accident occurred.

Discussion

The investigation disclosed that the weather was clear and that the sun was shining brightly when the accident occurred. The log truck involved was owned and operated by its driver, who was a man about 48 years old, and he was making his third trip from the woods this day. He had gone on duty at 8 a.m. and had covered a distance of about 140 miles at the time of the accident. He had driven log trucks for several years and was considered competent. The driver made a right turn into 8th Street with a load of three logs, measuring about 41 feet in length. The distance from the turn to the crossing was about 68 feet. The crossing signal lights were flashing and the crossing bell was ringing and no other automobile was using the crossing. He apparently shifted to a lower gear to proceed over the crossing but no stop was made and the truck was driven upon the crossing immediately in front of the approaching train in disregard of the signals indicating the approach of the train.

The proper engine whistle signals were sounded, including an alarm signal, and the engine bell was ringing as the train approached. A town ordinance restricts the speed of trains through Bucoda to 25 miles per hour and the railroad's special instructions limit the speed over the crossing involved to

that rate. The speed of the train at the time of the accident was variously estimated to have been from 25 to 70 miles per hour; the preponderance of evidence was that the train was being operated normally and at a speed of 40 or 45 miles per hour. The testimony clearly established the fact that the usual air-brake application was made north of the station, then released, followed by an emergency application. The train had covered the 12 miles preceding the point of accident at an average speed of 48 miles per hour.

The flashing lights of the crossing signal were in full view of the truck driver, and from a point 25 feet west of the crossing he had a clear view of the railroad to the north. It could not be determined why he failed to heed the warnings or to observe the approach of the train, as he was killed in the accident. Had he stopped short of the crossing no doubt he would have heard the crossing bell and observed the flashing lights.

Prior to this accident the motor vehicle laws of the State of Washington required vehicles to stop only when the flashing lights of crossing signals were operating. Since its occurrence, however, the Department of Labor and Industries of the State of Washington has issued an order, effective June 1, 1939, which requires drivers of trucks with trailers having a gross weight of 24,000 pounds or more to stop such vehicles within 50 feet but not less than 20 feet of any railroad grade crossing before proceeding over the crossing.

In numerous reports previously issued by the Bureau of Safety covering the investigation of accidents between trains and vehicles at highway grade crossings it has been pointed out that the exercise of extreme caution is required of automobile, bus, and truck drivers to prevent the occurrence of accidents of this character.

Conclusion

This accident was caused by a log truck being driven upon a highway grade crossing immediately in front of an approaching train in disregard of signals indicating the approach of a train.

Respectfully submitted,

W. J. PATTERSON,

Director.