

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 3083
UNION PACIFIC RAILROAD COMPANY
REPORT IN RE ACCIDENT
AT HAYDEN, CALIF., ON
MARCH 14, 1947

SUMMARY

Railroad: Union Pacific

Date: March 14, 1947

Location: Hayden, Calif.

Kind of accident: Collision

Equipment involved: Maintenance-of-way : Cut of main-
self-propelled : tenance-of-way
crane : service cars

Train number: Work Extra M.W. 5 :

Consists: Crane : 28 cars

Estimated speed: 35 m. p. h. : Standing

Operation: Signal indications

Track: Single; tangent; 2.2 percent
descending grade westward

Weather: Clear

Time: 1:30 p. m.

Casualties: 1 killed; 5 injured

Cause: Failure to provide crane with
an efficient hand brake

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3083

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 3, 1910.

UNION PACIFIC RAILROAD COMPANY

April 25, 1947

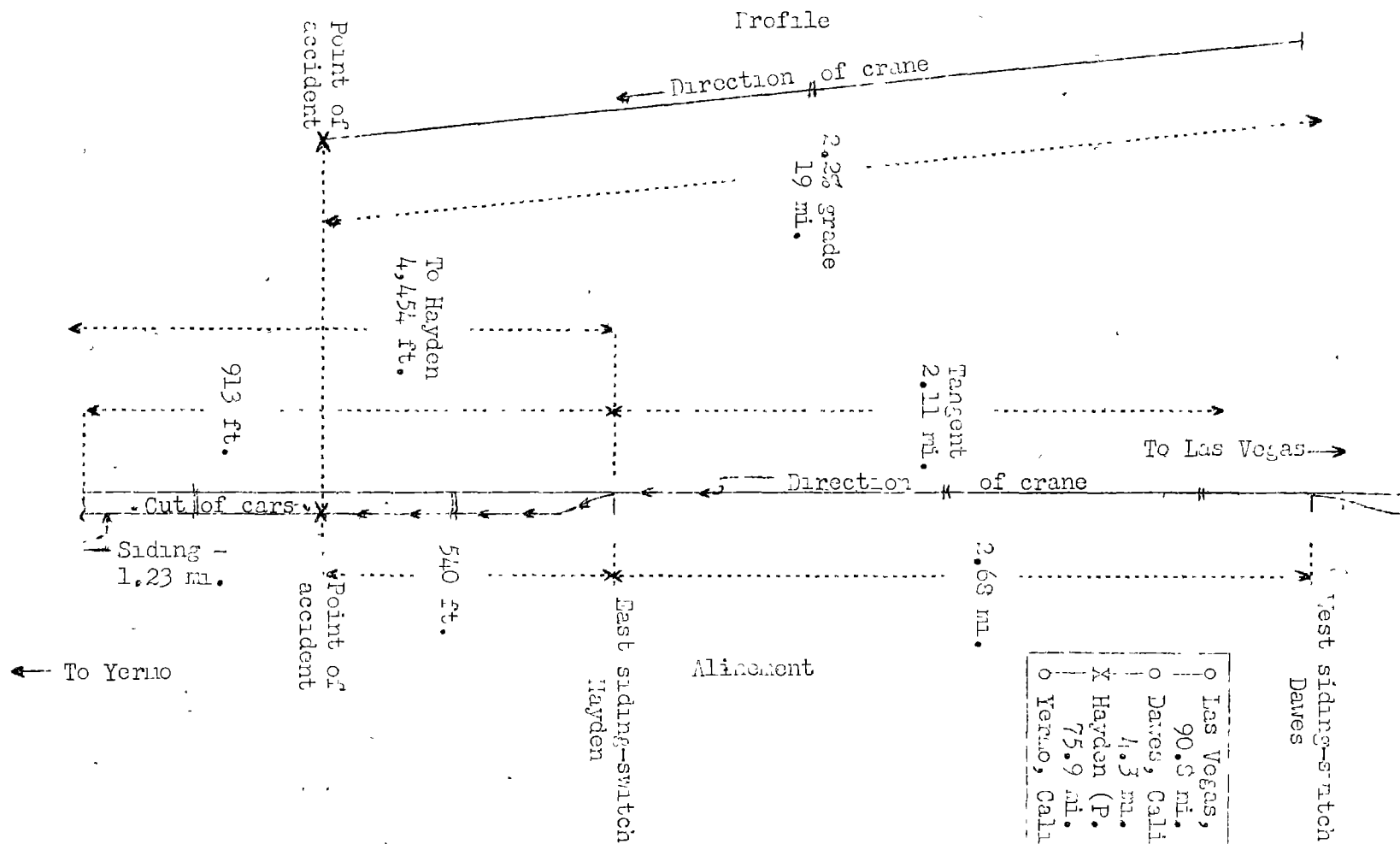
Accident at Hayden, Calif., on March 14, 1947, caused
by failure to provide crane with an efficient
hand brake.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On March 14, 1947, there was a collision between a self-propelled crane and a cut of cars on the Union Pacific Railroad at Hayden, Calif., which resulted in the death of the crane operator, and the injury of three maintenance-of-way employees and two train-service employees. This accident was investigated in conjunction with a representative of the Railroad Commission of California.

¹ Under 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.



Inv. No. 3083
 Union Pacific Railroad
 Hayden, Calif.
 March 14, 1947

Location of Accident and Method of Operation

This accident occurred on that part of the Los Angeles Division extending between Las Vegas, Nev., and Yermo, Calif., 171 miles, a single-track line, over which trains are operated by signal indications. At Hayden, 95.1 miles west of Las Vegas, a siding 1.23 miles in length parallels the main track on the south. The east switch of this siding is power-operated and is 4,464 feet east of the station. Entry to the siding at the east switch is made through a No. 10 turnout. The accident occurred on the siding 540 feet west of the east switch. From the east the main track is tangent 2.11 miles to the east siding-switch and 913 feet westward. The grade is 2.2 percent descending westward throughout a distance of 19 miles immediately east of the east siding-switch.

The switches of the siding at Hayden and the switches of the siding at Daves, 4.3 miles east of Hayden, are controlled by a centralized-traffic-control machine located at Las Vegas. The distance between the west siding-switch at Daves and the east siding-switch at Hayden is 2.68 miles.

Rules governing the inspection, operation and maintenance of maintenance-of-way machines and equipment read in part as follows:

2003. * * *

A general and careful inspection must be made of all equipment in use at the beginning of each shift, particular attention being given * * * clutches, brakes, * * * and any defect found must be promptly remedied.

The maximum authorized speed for the crane involved was 30 miles per hour on tangent track and 25 miles per hour on curves.

Description of Accident

Work Extra M.W. 5, consisting of self-propelled maintenance-of-way crane M.W. 5 en route from Daves to Hayden, entered the main track at the west siding-switch at Daves about 1:15 p. m., and while moving out of control at an estimated speed of 35 miles per hour it entered the siding at Hayden at the east switch, which was lined for entry to the siding, and collided with the east car of a cut of 28 maintenance-of-way service cars, which were standing on the siding immediately west of the east siding-switch.

The crane was derailed and stopped upright, in line with the siding and at an angle of 45 degrees to it. The crane and the most easterly car of the cut of cars on the siding, which was a flat car loaded with track material, were considerably damaged.

The crane operator was killed. The conductor-pilot and a flagman of Work Extra M.W. 5, and three maintenance-of-way employees who were on the crane were injured.

The weather was clear at the time of the accident, which occurred about 1:30 p. m.

Maintenance-of-way crane M.W. 5 is a self-propelled full-circle-rotating hoisting crane. It is equipped with a 30-foot boom, and the maximum safe lifting capacity is 11,070 pounds at a radius of 10 feet without the use of outriggers or blocking. The weight of the crane in working order is approximately 29,000 pounds. At the time of the accident the boom was pointed westward and at an angle of about 30 degrees above horizontal, and the operating cables were connected. The crane is used in maintenance-of-way service, and it operates rail-lifting tongs, drag lines, clamshell buckets and lifting magnets. The crane, exclusive of the boom, is 10 feet 7 inches high, 7 feet 9-1/2 inches wide, and 12 feet 6 inches long. It is provided with four wheels, and the distance between the centers of the axles is 9 feet. The car-body of the crane is constructed of heavy channel-section beams, and angle and gusset plates, joined by rivets. The cable winding drums, the internal-combustion motor, the controlling levers, the boom hoist and fulcrum and an enclosed steel cab are mounted on a one-piece cast-steel rotating deck, which is approximately the same length as the car-body. A system of gears, friction-band clutches and shafting transmits power from the hoisting motor to both axles. A system of levers and foot pedals, located in front of the operator's seat, controls hoisting and lowering movement of the winding drums, hoisting and lowering movement of the boom, rotation of the platform, and the propulsion mechanism for movement of the crane in either direction. The crane is equipped with a 4-speed heavy-duty selective-type transmission connected to the propellor shafting by a friction clutch for use in movement of the crane. Two friction clutches operated by one hand lever provide for movement in the desired direction. Power is transmitted through either clutch by beveled gears to the propelling shaft, which extends vertically through the center of the rotating deck and the body of the car and connects with the horizontal propelling shafting below the body of the car. This mechanism is provided with a sliding jaw type clutch to change the gear ratio of the

propelling mechanism and is operated by a lever mounted on the side of the car body. This lever can be placed in low-gear position for ordinary service, high-gear position for travel service, and in neutral position. The range of speed in low gear is between 1.34 and 8.56 miles per hour, and in high gear between 3.44 and 21.7 miles per hour. The hoisting drums and the rotating and propelling mechanisms are controlled by clutches of the band-and-drum type, which are operated by foot pedals. The brake controlling travel movement of the crane consists of a drum 19 inches in diameter, located on one of the propellor clutches, which can be retarded by a brake band provided with a rubber lining 5/16-inch thick and 2 inches wide. Normally the brake band is anchored at the dead end by an eyelet, which fits over a lug and is held in place by a washer and a cotter pin. The other end of the band is attached to a cable, which is connected to the operator's foot pedal. All operating levers and foot pedals, except the high-and-low gear lever on the side of the car, are easily accessible to the operator from his usual position on the seat. The crane was not provided with either a hand brake or a power brake.

The last general repairs of the crane involved were completed during November, 1946.

Discussion

Work Extra M.W. 5, consisting of a maintenance-of-way self-propelled crane, was engaged in replacing No. 10 turnouts with No. 14 turnouts at sidings in the centralized-traffic-control territory involved. About 1:12 p. m. the dispatcher placed the control levers of the centralized-traffic-control machine in position to line the west siding-switch at Dawes and the east siding-switch at Hayden for Work Extra M.W. 5 to proceed from the siding to the main track at Dawes, thence westward to Hayden to enter the siding at that point at the east switch. Work Extra M.W. 5 departed from the siding at Dawes about 1:15 p. m., and was moving westward on the main track at an estimated speed of 35 miles per hour when it entered the siding at Hayden at the east switch and collided with the east end of a cut of maintenance-of-way service cars standing on the siding.

When Work Extra M.W. 5 departed from Dawes the operator of the crane, the conductor-pilot, a flagman, two maintenance-of-way laborers and a signal-maintainer helper were on the crane. The crane operator was killed in the accident. The conductor and the flagman were seriously injured, and were unable to make statements before this investigation was completed. The uninjured occupants of the crane said that when the crane was started at Dawes the motor was retained in gear, and a speed of about 10 miles per hour was maintained

on the descending grade until the crane reached a point about 2 miles east of Hayden. Then they heard a noise indicating that some part of the mechanism had broken, and the crane moved out of control to the point where the collision occurred. During this time the operator made several attempts to stop the movement by operating various levers, including the propelling-gear clutch.

Examination after the accident disclosed that the brake-band controlling the propelling mechanism had become free of the anchor lug at the dead end. Therefore, no braking force could be applied to retard the movement of the crane. After the accident the engine transmission-gear control was in neutral position. The gear ratio-lever at the side of the body of the car had been moved to neutral position, as a result of its having been struck by some object during the collision. The general supervisor of work equipment and the supervisor of work equipment said that it was most unusual to operate a crane of the same character as the one involved on a steeply descending grade with the transmission lever in neutral position. However, no employee is instructed to operate a crane on a descending grade with the gears engaged nor is there any rule requiring that such action be taken. The supervising officers were of the opinion that after the movement of the crane was started at Daves the operator disengaged the gears by placing the shifting lever in neutral position, and was depending upon the brake to control the speed. After the brake band failed, the operator apparently operated the propelling gear clutch, which started the train of gears revolving to the extent that it was not possible for the remainder of the gears to mesh by use of the transmission shifting lever.

According to the evidence, the crane operator had replaced the lining of the brake band in question about 7:15 a. m. on the day of the accident. After the accident a search was made to locate the cotter pin and the washer which should have been used to retain the dead end of the brake band on the anchor lug, but these parts were not found. The crane was dismantled and all gears, shafting, bearings and clutches were examined. No condition was found that would prevent the proper engaging or disengaging of any part of the mechanism between the motor and the axles.

The Safety Appliance law prohibits any common carrier engaged in interstate commerce by railroad from hauling or using any car that is not equipped with an efficient hand brake.

The car involved in this accident was not equipped with a hand brake, and therefore its movement from Daves to Hayden was in violation of the Safety Appliance law.

Cause

It is found that this accident was caused by failure to provide a crane with an efficient hand brake.

Dated at Washington, D. C., this twenty-fifth day of April, 1947.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.