Inv-2095

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

MISSOURI-KANSAS-TEXAS RAILROAD

KLONDIKE, MO.

SEPTEMBER 10, 1936

INVESTIGATION NO. 2095

SUMMARY

Railroad:	Missouri-Kansas-Texas
Date:	September 10, 1936
Location:	Klondike, Mo.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	No. 74
Engine number:	864
Consist:	65 cars, caboose
Speed:	25 m.p.h.
Track:	2°15' curve followed by tangent; accident occurred on tangent.
Weather:	Clear
Time:	8:45 p.m.
Casualties:	5 killed
Cause:	Not definitely ascertained

October 16, 1936

To the Commission:

On September 10, 1936, there was a derailment of a freight train on the Missouri-Kansas-Texas Railroad near Klondike, Mo., which resulted in the death of 5 trespassers.

Location and method of operation

This accident occurred on the St. Louis Division of the Northern District, which extends between Franklin and Machens, Mo., a distance of 162.2 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders, no block-signal system being in use. The accident occurred about 1/2 mile north of the depot at Klondike; approaching the point of accident from the south the track is tangent for a distance of 431 feet, then there is a 2°15' curve to the right 524 feet in length, followed by 716 feet of tangent, the accident occurring on this tangent at a point 150 feet from its southern end. The grade for north-bound trains is 0.253 percent descending for 1,300 feet, then it is 0.062 percent ascending for 2,400 feet; the accident occurred on this ascending grade at a point 1,073 feet from its southern end, the entire train being on this ascending grade at the time.

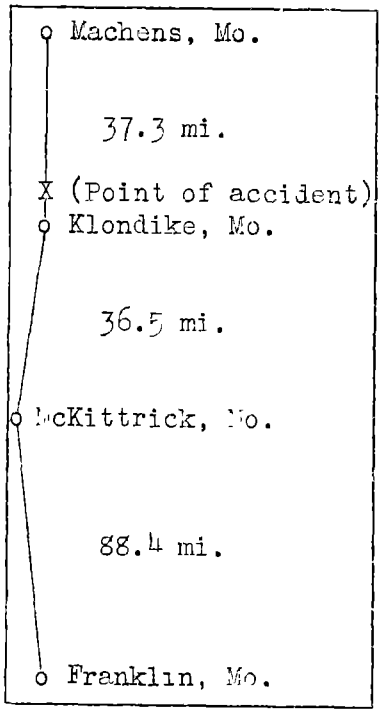
The track is laid with 90-pound rails, 39 feet in length, with 22 ties to the rail length, single-spiked, fully tieplated and ballasted with rock to a depth of about 3 inches below the ties.

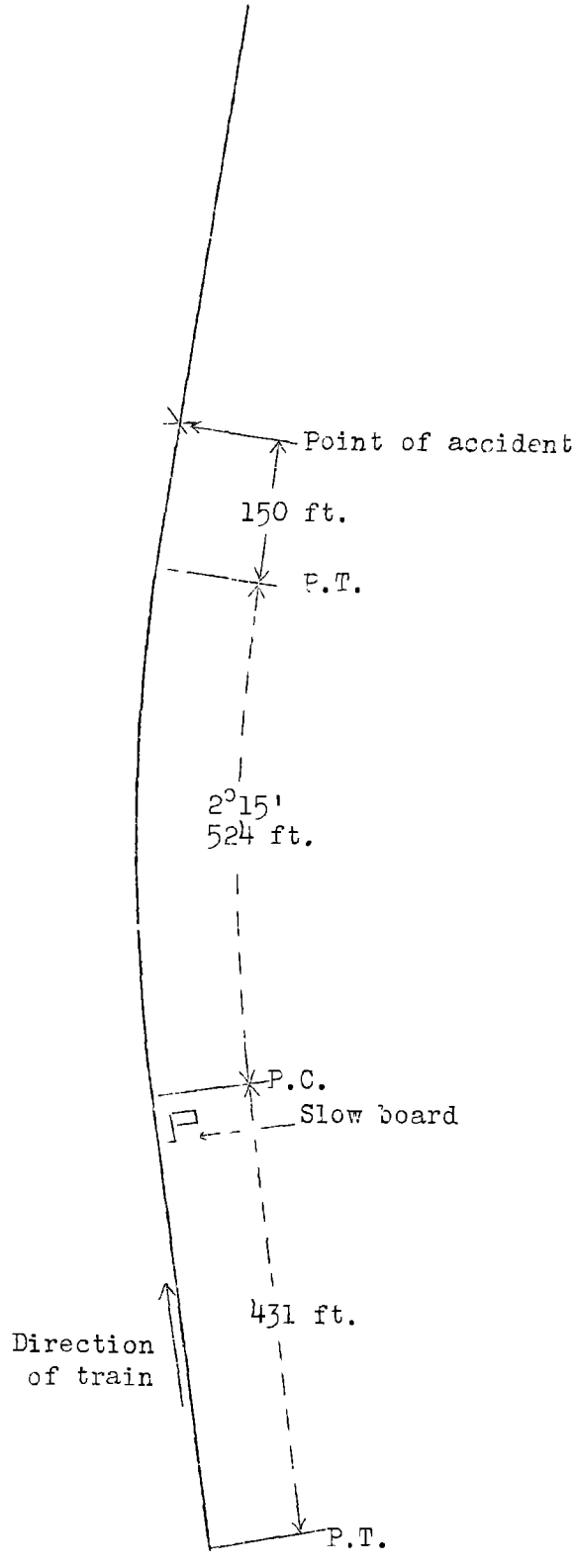
At the south end of the 2°15' curve preceding the tangent on which the accident occurred there is a slow board restricting the speed of north-bound freight trains to 25 miles per hour around Rock House curve, a 3°48' curve located 1/2 mile beyond the slow board.

The weather was clear at the time of the accident, which occurred about 8:45 p.m.

Description

Train No. 74, a north-bound third-class freight train, consisted of 63 loaded cars, 2 empty cars and a caboose, hauled by engine 864, and was in charge of Conductor Toler and Engineman Clayton. This train left Franklin at 4:30 p.m., according to the train sheet, and arrived at McKittrick, 88.4 miles beyond, at 7:22 p.m. It departed from this point at 7:37 p.m. and on





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reaching a point about 37 miles beyond, was derailed while traveling at a speed estimated to have been about 25 miles per hour.

The 32nd to the 47th cars, inclusive, were entirely derailed, as well as one truck of the forty-eighth car. The thirty-second cars was S.H.P.X. 11577, a tank car loaded with 10,173 gallons of fuel oil; this car and 11 others of the derailed cars contained inflammables which became ignited and resulted in the destruction of the derailed equipment after it stopped in various positions within a distance of 450 feet.

Summary of evidence

Engineman Clayton stated that the air brakes were tested and worked properly and he did not notice anything unusual prior to the accident on this trip; when about 1/2 mile south of the depot at Klondike the speed was about 35 miles per hour, and he graduated to a drifting throttle in order to conform to the 25-mile-per-hour limit around Rock House curve; there was no severe run-in of slack and the train handled properly. Just before reaching Klondike he looked back along the train, as he had done at various other points en route, but he did not see fire flying or any other indication of trouble. He did not use the air brakes at any time immediately prior to the accident and the first he knew of anything wrong was on seeing a reflection of light which came from the rear of the train, at which time the engine was near Rock House curve; about 10 or 15 seconds after the flash, and just as he turned to look back, he felt the air brakes being applied in emergency from the rear, at which time the speed was about 25 miles per hour; then the train stopped. Statements of Fireman Bryan, also Head Brakeman Charles who was riding in the brakeman's cabin on the tender, corroborated those of Engineman Clayton as to what transpired en route on the trip; Head Brakeman Charles said that he was looking back when the accident occurred and the first indication he saw was a blaze of fire shooting upward and about 10 or 15 seconds later the air brakes were applied in emergency from the rear and the train stopped. He was certain the flame preceded the application of the air brakes by 10 or 15 seconds.

Conductor Toler was in the cupola and Flagman Lux was in the body of the caboose when the accident occurred. They inspected both sides of the train at various points en route and observed it while rounding curves, but saw no indication of fire flying or dragging equipment prior to the accident. Conductor Toler said the first indication he saw of trouble consisted of sparks flying from the right side of the train, followed immediately by flames leaping into the air, and at about the same time the air brakes went into emergency, the speed then being about 25 miles per hour, after having been reduced from about 35 miles per hour. He did not feel any surge of slack. Conductor Toler said that he and the

two brakemen inspected the rear half of the train at McKittrick and there were no leaks in the tank cars at that time. In the event that gasoline had become ignited prior to the derailment he thought he was in position to have seen it; however, he could not make a positive statement that the inflammables did not ignite prior to the accident, saying that he saw the flying sparks and the flames at the same time the air was applied.

Acting Car Foreman Donahue personally made both the inbound and the outbound inspection of the rear-half of Train No. 74 at Franklin on September 10th, but found no defects, and he also tested the air brakes before the train departed and they worked properly. As wreck foreman, he went to the scene of the accident about 2:15 a.m., September 11; marks of derailment were found in the track and an arch bar truck was found with one side buried in the ground and the truck torn apart, truck sides and bolster separated, with one pair of wheels thrown out of place while one wheel had about 13 inches of the flange missing. There were marks indicating where a wheel had mounted the left or west rail; the first mark on the top of the rail was a slight indentation for a few inches, extending diagonally across the top of the rail, at the point of derailment, then there was a heavy mark, apparently made by the edge of a wheel flange, for a distance of 5 or 6 feet to where it disappeared and the next marks appeared on spike heads and then on the ties. The mark that extended diagonally across the top of the rail which apparently was made by the edge of the flange, was well defined, and the rest of the mark was plain enough to be easily seen; the marks on the ties indicated that after the wheel had made about one revolution it became locked, but he did not see any marks on the ties that appeared to have been made by a broken flange. In his opinion the mark on the rail was caused by the wheel with the broken flange, as the first marks where the wheel mounted the rail were of a light nature and more or less irregular in depth, indicating that they were not made by an even surface; the heavier mark was of even depth in the rail and continuous, which indicated that the first mark was made by the portion of the broken flange. Marks appearing on the opposite rail for a considerable distance south of the point of accident were apparently made by a dragging brake shoe key or some other light piece of metal. The appearance of the largest portion of the break in the wheel flange indicated a throat crack or seam; however, it was not possible to determine whether it was an old or a new defect due to the wheel having been through the fire, which discolored the break; the flange showed some wear, but it was not within the condemning limits. At the time he first saw this pair of wheels there was no indication that either wheel had been loose on the axle. The rim on one pair of wheels found in the wreckage was scaly with small portions

broken out at different places, but not within the condemning limits, and he thought that at least a part of the pieces had been broken out for sometime prior to the derailment; however, there was no flange wear of consequence on this pair of wheels. He did not know which car of the train was first to become derailed, and did not think that track conditions had anything to do with the accident. He was of the opinion that the derailment was due to a broken flange and that the forward pair of wheels of the lead truck of some car were the first to become derailed, also that the second pair of wheels of the same truck remained on the rail until the car turned over, which prevented those wheels from touching the ties.

Section Foreman Koelling, upon whose section the accident occurred, stated that the limits of his section extend from milepost 61 to milepost 67. He was over the entire section on September 10th, passing over the track where the accident occurred at 10:45 a.m., but he did not notice any unusual track conditions. The last track work at the location involved was done about one month prior to the accident, at which time the joints were raised. After the accident he made a close inspection of the track in company with Roadmaster Humphrey; some low spots were found in the track but they were not bad. At a point 20 feet south of the point of derailment there was a burn mark in the center of the west rail as though metal had been dragged upon it, this mark being about 10 feet in length, while at a point about 8 feet south of the point of derailment and on the same rail, there were short marks on top of the rail, about ¾ inch in length and about ¾ inch apart; the section foreman did not notice any long mark extending diagonally across the top of the west rail at the point of derailment. While he had not formed any opinion as to what caused the accident, nevertheless, judging from the manner in which the equipment came to rest, he thought the train was moving at a high rate of speed when the derailment occurred.

Roadmaster Humphrey stated that he had been over the track involved, on trains and motor cars, several times during the month of September, the last time being on a motor car on September 8th, but he did not notice any irregularities in the track. About 6 or 7 weeks prior to the accident he instructed the section foreman as to necessary repairs, consisting of spotting the track and picking up several low joints between Klondike and Rock House curve, and this work was done. Several light rains had fallen about one week prior to the accident, but not enough to soften the ground and the roadbed was hard. He did not think that the low joints were in such condition as would cause the cars to sway to any appreciable extent. He arrived at the scene of the accident about 4 a.m., September 11, and later examined the track, using the track level on the curve south of the tangent involved; nothing was found wrong with the track that would have caused the derailment. He said that there was only one joint at present that should be raised and that it was not over ¾ inch low. There were sharp marks on the west rail about 15 feet in advance of the point where the wheel left the rail and some very

dim marks were on the east rail, which appeared to have been made by a bad wheel. The derailed equipment was scattered over a space of about 450 feet; he thought the speed of the train was about 35 miles per hour at the time of the accident, and attributed the cause of the accident to a broken wheel flange.

District Engineer Dunlay stated that starting at a point 330 feet south of the point of accident light indentations ranging from 6 to 12 inches in length were found at irregular intervals on the top of the east rail. Starting on the gauge side of the west rail at the point of derailment, and extending northward 12 feet 10 inches, there was a heavy indentation in a straight line, approximately 1/32 inch in width and depth and apparently a flange mark, which varied alternately from a very faint mark to one sharply cut; this flange mark was plain for a distance of 6 feet, faint for 13 inches, plain for 6 inches, very faint for 9 inches and then a deep mark for 4 feet 6 inches to the point where the wheel left the rail. In his opinion the indentation upon the ball of the rail was caused by a wheel on which part of the flange was missing.

Trainmaster Stocker stated that there was no indication of dragging equipment around the north switch of the siding at Klondike; the rest of his testimony corroborated that given by other witnesses.

Car Foreman Rochus stated that S.H.P.X. 11577 was a 100,000-pound capacity car, with 5½" x 10" journals. The wheel with the broken flange was a 33-inch cast-iron single-plate wheel, weight 750 pounds, series A.R.A. 1928, manufactured by the Marshall Wheel & Foundry Co., Marshall, Tex., wheel number 30083, cast May 13, 1930, initial T. & P. R.R. In connection with the condition of the fractured surface of the flange, he said that there could have been an old fracture or seam in the throat of the flange, but due to the wheel being in the fire it was impossible to say whether the break occurred during the process of derailment or was the result of an old defect. One of the wheels on this particular axle was found to be loose, but he thought that this was due to having been through the fire following the accident.

The wheel with the broken flange was later identified as being one of the trailing wheels from the rear arch bar truck of tank car S.H.P.X. 11577; no defects were found on the leading truck of this car that could be associated with the cause of the accident.

Inspection of the track by the Commission's inspectors disclosed that the rails did not show excessive wear; the ties were in fair condition and the depth of ballast was sufficient. In the rail panel at the point of derailment three spikes were found that had worked up ½ inch or more, but in three other panels near the point of derailment 50% of the spikes had raised ¼ inch or more.

There was evidence of the rails creeping alternately north and south with resultant shearing effect on the spikes at rail joints, some of the spikes being nearly severed. The joints on the outside rail of the first two curves south of the point of derailment were firm, while all joints except one, on the inside rail of each curve were low enough to be detected without making special inspection. There was evidence of churning at some joints, while at others the ties were firm on the ballast but the rail was raised off the ties as much as $\frac{1}{2}$ inch. The maximum superelevation of the outside rail of the curve immediately south of the tangent involved was 6 inches, with fairly uniform graduation to $\frac{1}{2}$ inch elevation at the end of the spiral; the track was within proper gauge. No indication of dragging equipment was found. The marks on the ties were apparently made by one pair of wheels and beyond these marks about 250 feet of track was demolished. Inspection of S.H.P.X. 11577 disclosed an indentation on the rim of the hole in the body bolster center casting, A-end of car, this mark apparently having been made by the center pin when the car body slid forward off the truck, and there was a similar indentation in the body bolster center plate under the B-end of the car, these marks indicating that the A-end of the car was the leading end at the time of the accident.

Discussion

Train No. 74 was inspected and the air brakes were tested by car inspectors at Franklin and nothing was found wrong with the cars or the brakes; the train was again inspected by the train crew at McKittrick and was viewed by them from the front and rear ends at various points, and while rounding curves en route, but nothing wrong was noticed. There was nothing wrong with the air brakes and the train handled properly; it was traveling at the usual rate of speed in this locality; when about $\frac{1}{2}$ mile south of Klondike, the engineman graduated to a drifting throttle in order to reduce speed to the 25 mile-per-hour limit around Rock House curve. No severe slack action occurred and there was no indication of dragging equipment or fire flying from the train prior to the accident, and while some criticism might apply to track conditions, it is not believed they were such as to be a primary cause of the derailment. Members of the engine crew were not aware of anything wrong until they saw a reflection of light which came from toward the rear of the train, at which time they estimated the speed of the train was about 25 miles per hour, and they stated that about 10 or 15 seconds after the flash of light was seen, the air brakes were applied in emergency from the rear.

The conductor said that he saw sparks flying from the right side of the train simultaneously with a burst of flame and the emergency application of the air brakes. A wheel was found with $13\frac{1}{2}$ inches of the flange broken and the high rail of the curve bore a mark 12 feet 10 inches in length extending diagonally across

the top of the rail, this mark appearing immediately in advance of flange marks on the ties; the mark on the rail had the appearance of having been made by a broken flange. There was also a slight burn of some length on the opposite rail, this mark seemingly having been made by a light piece of metal dragging upon the rail.

The wheel with the broken flange was identified as belonging to the south truck of car S.H.P.X. 11577, a 100,000-pound capacity tank car loaded with 10,175 gallons of fuel oil, weighing 75,280 pounds; this truck was demolished, while the truck at the north or leading end of the car had no defect that could be associated with the cause of the accident. It was also definitely established that this car was the first to become derailed. A loose wheel was also found on the same axle with the broken flange, but due to both wheels having gone through the extreme heat of the fire caused by the burning oil and gasoline, it was impossible to determine what caused it to become loosened, neither was it possible to determine any positive information regarding the fractured flange. Whether the derailment was caused by the broken flange or whether it was caused by an explosion as a result of sparks from dragging equipment or from some other cause, could not be determined.

Conclusion

The cause of this accident was not definitely determined.

Respectfully submitted,

W. J. PATTERSON,

Director.