

## IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE UNION PACIFIC RAILROAD AT MENOKEN; KANS., ON JULY 24, 1930.

On July 24, 1930, there was a rear-end collision between two freight trains on the Union Pacific Railroad at Menoken, Kans., which resulted in the death of two employees off duty, and the injury of one employee off duty and three passengers. This accident was investigated in conjunction with representatives of the Kansas Public Service Commission.

### Location and method of operation

This accident occurred on the Topeka Branch of the Central Division, which extends between Upland and Menoken, Kans., a distance of 70.2 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred within yard limits, at a point 210 feet east of the west yard-limit board at Menoken; approaching this point from the west, the track is tangent for a distance of almost 3 miles, followed by a 1 degree curve to the left, 3,339 feet in length, the accident occurring on this curve about 1,300 feet from its eastern end. The grade at the point of accident is 0.22 per cent ascending for eastbound trains.

The Topeka Branch terminates at Menoken, where it joins the main line of the Kansas Division. There is a facing-point crossover for trains moving eastbound on the Topeka Branch, and east of this crossover, the Topeka Branch track continues but is known as the passing track paralleling the Kansas Division track on the north.

The weather was slightly cloudy at the time of the accident, which occurred about 11.41 p.m.

### Description

Eastbound freight train extra 2269 consisted of 38 cars and 2 cabooses, hauled by engines 2269 and 5009, and was in charge of Conductor Bostio and Enginemen Wilderwood and Thompson. This train passed Emmett, the last open office, 22.6 miles from Menoken, at 10.37 p.m. and arrived at Menoken at 11.10 p.m. Upon arrival, it pulled by the crossover and into the passing track until it was stopped and backed up so that an opposing freight train could clear the main track of the Kansas Division and thus allow westbound train No. 21 to pass. After backing up, extra 2269 was brought to a stop with the rear end of the train just east of the west yard-limit board, where it had been standing for some time when it was struck by extra 5026.

Eastbound freight train extra 5026 consisted of 58 cars and a caboose, hauled by engine 5026, and was in charge of Conductor Holliday and Engineman McIntire. This train passed Emmett at 11:03 p.m., and collided with extra 2269 at Menoken while traveling at a speed variously estimated to have been between 3 and 15 miles per hour.

The two cabooses of extra 2269 were demolished and the three rear cars in this train were derailed and quite badly damaged; the fourth car from the rear was also damaged but was not derailed. Engine 5026 and its tender were derailed, but remained upright and in line

with the track, while the twenty-eighth car in extra 5026 was considerably damaged, although it was not derailed. The employees killed and injured were riding in the leading caboose of extra 2269, and the passengers injured were riding in the rear caboose of the same train.

#### Summary of evidence

Conductor Bostic, of extra 2269, stated that after his train entered the passing track at Menoken, he learned that it would be necessary to clear that track so that a westbound freight train could clear the Kansas Division main line in order to permit train No. 21 to pass. His train was then backed up on the Topeka Branch and stopped with the engine clear of the west crossover switch. He remained at the cross-over and was not concerned about protecting the rear of the train as he knew its approximate length as well as the distance to the yard-limit board and was satisfied the train was within yard limits. Train No. 21 passed about 25 minutes later, the crossover switches were lined, and he gave the engineman a signal for the movement of his train to the Kansas Division track. Noticing that this signal was not being acted upon, he gave another proceed signal, and when no response was received from these signals he went to the engine, inquired as to why the train was not started, and the engineman replied that there was no air pressure. In an effort to locate the trouble he opened two bleed cocks, but there was no escaping of air. He then looked back along the train but did not see the green marker light on the caboose, noticing a red reflection instead, as well as smoke and steam, this being his first knowledge that his train had been struck by a following train.

Flagman Matthews, of extra 2269, stated that while his train was making the back-up movement, he rode on the rear platform of the caboose, and that when the train stopped the caboose was about 10 car-lengths east of the yard-limit board. He remained on the rear platform, and about 20 minutes later he observed the reflection of the headlight of a following train, at which time he thought it was rounding the first curve west of the curve on which the accident occurred. He watched the progress of the train and thought it was moving pretty rapidly while approaching yard limits, and when it had reached a point more than one-half mile from his own train he became uneasy, as its speed did not appear to be retarding. He procured a red fusee from the caboose, went back about 200 feet, lighted the fusee, placed it on the track, and then started to return to his caboose. Upon looking around he became further alarmed, in view of the speed of the approaching train, so he started running towards his caboose, at the same time calling a warning, but soon realized he could not accomplish anything by doing so, and he then ran to the burning fusee, picked it up, and continued running towards the approaching train, giving stop signals. These signals were acknowledged about the time the engine of that train passed him, which he estimated was about 500 feet from the point of accident. He had not looked at the markers on his caboose at any time after the train stopped at the point where it was standing at the time of the accident. Flagman Matthews further stated that he did not know there was a state law of Kansas in effect which required that when a train, engines or cars, are obstructing the main line they shall be protected against approaching trains at all times regardless of the use of any block-signal system, or signal, or any yard-limit board, and said that he had never been examined concerning this law.

Engineman McIntire, of extra 5026, stated that before leaving Marysville a terminal air test

was made which proved satisfactory, and that in making two stops en route the brakes functioned properly; his train was carrying a brake-pipe pressure of 70 pounds. While approaching the Menoken mile board, traveling at a speed of from 35 to 40 miles per hour, he made a 15 to 18-pound brake-pipe reduction, reducing the speed to about 20 miles per hour; he then released the brakes, holding the brake-valve handle in release position for about 20 seconds before placing it in running position and a few seconds later he again put the handle in release position for probably 5 seconds. Just before reaching a highway crossing, located 622 feet west of the yard-limit board, he started making another reduction, with the intention of reducing speed to 10 miles per hour by the time the train reached yard limits. The air pressure had been reduced about 6 pounds when both the fireman and head brakeman called "red fusee", whereupon he placed the brake-valve handle in emergency position, and about the same time he saw the reflection of a fusee; he thought that the engine had reached a point about six car-lengths east of the crossing when this warning was sounded. Shortly afterwards the fireman and brakeman shouted another warning, and he then reversed the engine and opened the sanders, but the train kept pushing forward until his engine struck the train ahead. Just before the collision, he noticed the south marker light on the caboose, but he did not notice whether the north marker or the cupola lights were burning. He estimated the speed of his train at the time of the accident between 3 and 4 miles per hour. Engineman McIntire further stated that on account of his position on the outside of the curve, his own view ahead was restricted, but he had noticed that the fireman and brakeman were looking forward while approaching the point of accident and he relied on them to keep him informed as to conditions ahead without requesting them to do so. The weather was cloudy, but it did not interfere with visibility, and it was his opinion that a train standing at the point of accident could have been seen from the left side of the cab for a distance of almost one-half mile. It also appeared from the engineman's statements that the tonnage of his train was not heavy for the class of engine in use, that there was nothing in the operation of the train that contributed to the cause of the accident, that he was familiar with his location at all times, and that he did not think the fact that this was his first trip on this line with this particular type of engine caused him to misjudge the speed of his train approaching the yard limits. He knew the rules required him to operate his train within yard limits prepared to stop unless the track was seen or known to be clear, and was of the opinion that by entering the yard limits at a speed of 10 miles per hour he was complying with this rule, in view of the lookout he supposed was being maintained by the fireman and brakeman.

Fireman Setters, of extra 5026, stated that there was nothing to distract his attention and that he was keeping a sharp lookout while approaching Menoken. He thought the train was traveling at a speed of about 35 miles per hour when it passed the yard-limit mile board, and at that time the engineman made a service application of the brakes which reduced the speed to about 25 miles per hour. Another brake application was made a short distance west of the highway crossing, west of the yard-limit board. When the engine reached a point two or three car-lengths west of the crossing, Fireman Setters observed a burning fusee between the crossing and the yard-limit board, and at about the same time he saw the train ahead; he immediately called to the engineman "fusee ahead, and a train standing there", and the engineman made another brake application which the fireman thought was in emergency. He estimated the speed of his train at the time of the accident at 15 miles per hour. Fireman Setters further stated that under ordinary conditions a caboose standing at the point of accident could be seen, either day or night, for a distance of approximately

three-fourths of a mile, and he attributed his failure to see the markers of the caboose of extra 2269 any sooner than he did on this particular occasion to the reflection of the headlight of a westbound train standing on the passing track, as well as the headlight of westbound train No. 21 which was approaching on the Kansas Division; there was also a small tree on the left side of the track which possibly obstructed his view to some extent for a short time. It also appeared from the fireman's statements that just before the collision occurred, he noticed that the marker lights on the caboose of extra 2269 were burning brightly, but the cupola light was not as bright as the markers.

Head Brakeman Herring, of extra 5026, stated that he was riding on the fireman's seatbox looking ahead while approaching the point of accident. The train was traveling at a speed of about 40 miles per hour when the brakes were first applied and when the speed had been reduced to about 25 miles per hour they were released; the brakes were again applied before reaching the highway, and when the train was three or four pole-lengths west of the crossing he noticed the rear lights on a train standing on the track ahead and also saw some one light a red fusee and give a stop signal. He notified the engineman to this effect and the engineman immediately applied the brakes in emergency, but there was no perceptible reduction in speed, the engine passing over the highway at about 20 miles per hour, and it was still traveling about the same speed when the brakeman got off between the crossing and the yard-limit board. Head Brakeman Herring also said there were two headlights burning beyond the standing train, and that although he looked several times in the direction of where the caboose of extra 2269 was standing, yet he saw nothing until the fusee was lighted. He thought these headlights had blinded him and that it was for this reason that he did not see the marker lights on the caboose any sooner than actually was the case.

Conductor Holliday, of extra 5026 who was riding in the cupola of the caboose, said that when the engine reached a point approximately 1 1/2 miles west of the yard-limit board, he felt an air-brake application which reduced the speed from between 35 and 40 miles per hour to about 20 miles per hour, the forward end of the train being about one-half mile west of the highway by that time. Immediately after the engine passed over the crossing he noticed another slight reduction of air, which was followed almost instantly by a full reduction; this depleted the train line, causing the rear of the train to bunch, and the train came to an abrupt stop, but he did not know at this time that a collision had occurred. Conductor Holliday was of the opinion that the train was being operated in the normal manner while approaching yard limits, and had he been apprehensive about the speed he would have taken action to have it reduced, but in his judgment the train was approaching Menoken under proper control. He further stated that he was not familiar with the Kansas law requiring flag protection for all trains, etc., obstructing the main line, regardless of their location.

Tests conducted subsequent to the accident developed that the south marker light of a caboose standing at the point of accident first came into view from the fireman's side of an eastbound train at a distance of 2,075 feet, and at 1,950 feet the cupola light could be seen and remained in view for a distance of 78 feet, when it disappeared, but it again came into view, as well as the north marker light, at a point 1,824 feet from the caboose. The yard-limit board can first be seen from the engineman's side of the cab at a distance of 575 feet and the south marker light of the caboose at a distance of 239 feet.

## Conclusions

This accident was caused by the failure of Engineman McIntire, of extra 5026, to have his train under proper control when approaching yard limits.

The rules provide that within yard limits the main track may be used, protecting against first-class trains; all trains and engines must move within yard limits prepared to stop unless the main track is seen or known to be clear. Engineman McIntire said that he was familiar with this rule and that he reduced the speed of his train to about 20 miles per hour while approaching the yard limits at Menoken, and was in the act of applying the brakes the second time with the intention of further reducing the speed to about 10 miles per hour before passing the yard-limit board when he received the first warning of danger; he immediately applied the brakes in emergency but it was then too late to prevent the accident. In view of the lookout being maintained by the fireman and head brakeman, who were on the inside of the curve and were in a position to observe conditions ahead he had supposed that they would be able to see whether or not the track was occupied; as it was, there is no question but that he failed to receive adequate warning of the train ahead. It is not believed, however, that Engineman McIntire had reduced speed to the extent stated by him, and he is at fault for not having his train more nearly under control.

It does not appear that Fireman Setters and Head Brakeman Herring were maintaining a proper lookout. They did not notice the train ahead until they saw the fusee, although the markers on the rear of the caboose were burning brightly, and their only apparent excuse was the fact that there were two headlights on westbound trains in the vicinity of Menoken. The headlight on the westbound freight train, however, was to the left of the train with which they collided, while this latter train would cut off much of the reflection from the headlight of train No. 21. Tests showed that both markers could have been seen about 1,800 feet, and it is believed that these two men should have seen the rear of extra 2269 much sooner than actually was the case. Had they given prompt warning, or even had they told Engineman McIntire that their view was obstructed, if such actually was the case, it is very probable this accident never would have occurred.

The employees involved were experienced men, with the exception of a student fireman, and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law