

INTERSTATE COMMERCE COMMISSION

WASHINGTON

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REPORT OF THE DIRECTOR

BUREAU OF SAFETY

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ACCIDENT ON THE  
CHICAGO, BURLINGTON & QUINCY RAILROAD

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WEST BURLINGTON, IOWA

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FEBRUARY 26, 1938.

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INVESTIGATION NO. 2257.

SUMMARY

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Inv-2257

Railroad: Chicago, Burlington & Quincy  
Date: February 26, 1938.  
Location: West Burlington, Iowa.  
Kind of accident: Rear-end collision  
Trains involved: Shop : Freight  
Train numbers: Extra 312 : Extra 5604  
Engine numbers: 312 : 5604  
Consist: 4 cars : 76 cars  
Speed: 18-23 m.p.h. :  
Track: 0°44'28" curve to the left; slight  
descending grade  
Weather: Clear  
Time: 4:50 p.m.  
Casualties: 5 killed, 33 injured.  
Cause: Failure of Extra 312 to provide flag  
protection when carrying passengers,  
and failure of Extra 5604 to be oper-  
ated under proper control within yard  
limits.

March 29, 1938.

To the Commission:

On February 26, 1938, there was a rear-end collision between a shop train and a freight train on the Chicago, Burlington & Quincy Railroad at West Burlington, Iowa, which resulted in the death of 5 employees and the injury of 35 employees. The investigation of this accident was made in conjunction with a representative of the Iowa State Commerce Commission.

#### Location and method of operation

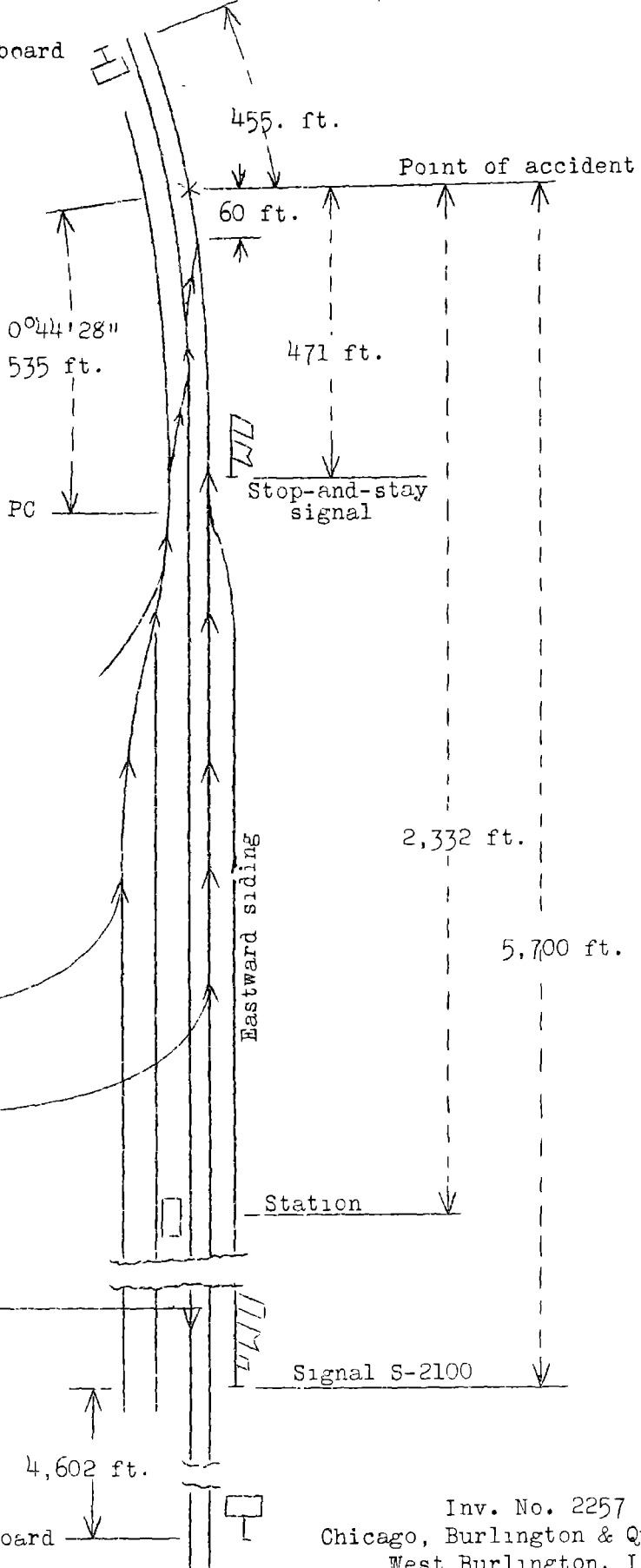
This accident occurred on that part of the Ottumwa and Creston Divisions which extends between Ottumwa, Iowa, and Galesburg, Ill., a distance of 117.3 miles, and is known as the Ottumwa to Galesburg Subdivision. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred within yard limits on the eastward main track at a point approximately 2,332 feet east of the station and 10,302 feet east of the west yard-limit board. Approaching this point from the west the track is tangent for several miles, followed by a 0°44'23" curve to the left 3,792 feet in length, the accident occurring on this curve at a point 535 feet from its western end. The grade for east-bound trains is in general descending, being 0.27 percent at the point of accident.

A running track through the yard situated north of the station connects with the westward main track approximately 2,055 feet east of the station, and from a point 25 feet east of this connection a cross-over running in an easterly direction connects the westward main track with the eastward main track; the accident occurred approximately 60 feet east of the east end of this cross-over. An eastward siding, 4,672 feet in length, parallels the eastward main track on the south. Special instructions contained in the timetable provide a maximum speed of 55 miles per hour for freight trains using 0-5 type engines, the type involved in this accident.

The automatic block signals involved are eastward signal S-2100, located 5,700 feet west of the point of accident, and a stop-and-stay signal located 471 feet west of the point of

Yard limit board

o	Galesburg, Ill.
	43.1 mi.
o	Burlington, Ia.
	3.9 mi.
x	West Burlington
	9.0 mi.
o	Danville
	61.3 mi.
o	Ottumwa, Iowa



Route of Extra 312

Direction of Extra 5604 on eastward main track

Westward main

Yard limit board

Inv. No. 2257  
 Chicago, Burlington & Quincy RR  
 West Burlington, Iowa  
 Feb. 26, 1938

accident. S-2100 is a 3-arm, 2-position, lower quadrant, semaphore type signal, continuously lighted; its indications are "proceed", "approach next signal prepared to stop", and "stop; then proceed". The indications of the stop-and-stay signal are "proceed", "approach next signal prepared to stop", and "stop". A train-order signal governing trains in both directions is located 1,871 feet west of the stop-and-stay signal.

Rule 93 provides that within yard limits the main track may be used clearing first-class trains as prescribed by the rules. Second and inferior class and extra trains must move within yard limits prepared to stop unless the main track is seen or known to be clear. Trains carrying passengers must be protected as prescribed by rule 99.

Rule 505 states that block signals govern the use of the blocks, but unless otherwise provided, do not \*\*\*dispense with the use or the observance of other signals whenever and wherever they may be required.

Special instruction 1 in the current timetable requires that in the territory involved in this accident freight trains carrying passengers or caretakers or occupied company service cars will be handled the same as passenger trains.

The weather was clear at the time of the accident, which occurred about 4:50 p.m.

#### Description

Extra 312, an east-bound shop train, consisted of 4 coaches, of all-wooden construction, hauled by yard engine 312 headed west, and was in charge of Engine Foreman Gardner and Engineman Mueller. This train left the station at West Burlington at 4:40 p.m., according to the train sheet, and proceeded eastward on a yard track to a point about 1,800 feet east of the station where it was delayed a few minutes by the passage of a west-bound extra. Extra 312 then entered the westward main track, passed through the cross-over to the eastward main track and had proceeded a short distance on the latter track and had attained a speed estimated at between 18 and 23 miles per hour when its rear end was struck by Extra 5604.

Extra 5604, an east-bound freight train, consisted of 48 loaded cars and 27 empty cars and a caboose, hauled by engine 5604, and was in charge of Conductor Parsons and Engineman Powell. This train departed from Ottumwa, 70.3 miles from

West Burlington, at 2:30 p.m., according to the train sheet, picked up one car en route, passed Danville, 9 miles west of West Burlington at 4:39 p.m., passed signal S-2100 displaying a proceed indication, passed the station at West Burlington at 4:49 p.m. while traveling at a speed variously estimated to have been between 40 and 60 miles per hour, passed the stop-and-stay signal displaying a stop indication, and collided with the rear of Extra 312.

Engine 5604 telescoped the rear end of the fourth car of the shop train a short distance; the fourth car telescoped the third car for a distance of about 10 feet; the rear trucks of these two cars were derailed. Engine 312 and the first two cars of the shop train were not derailed and stopped with the front end of the engine approximately 578 feet beyond the point of accident with only slight damage to one of the cars. None of the equipment in Extra 5604 was derailed. The front end of the engine was slightly damaged, and there were flat spots on the driving wheels. The employees killed and injured were shop employees being carried as passengers on the shop train.

#### Summary of evidence

Engineman Mueller, of Extra 312, stated that he received clearance card, Form A, giving him authority to move to Burlington, 3.9 miles beyond, and he also received information relative to No. 86, an east-bound train, and an extra west-bound from Burlington. He then proceeded from the station at West Burlington to the east end of the yard track where he waited about 2 or 2½ minutes for the west-bound extra to pass. While there was a little wind which caused the smoke to hang toward the northeast it did not interfere with his view to the west. As soon as the westbound extra had passed, the engine foreman and two helpers immediately lined the route for his train to move through the two cross-overs to the eastward main track. As soon as the switches were thrown the eastward signal changed from clear to stop. Engineman Mueller then asked the fireman if he could see anything approaching from the west, to which the fireman replied in the negative, except that he could see the way freight - No. 86 - heading in on the siding. The train then proceeded through the cross-overs and as the engine had practically reached the last switch on the eastward track, the engine foreman gave him a signal to increase speed and get out of the way. He thought that he had increased the speed

from 8 or 10 miles to about 20 or 23 miles per hour when his train was struck. His train stopped a short distance beyond due to an application of the brakes caused by the train line being broken.

Fireman Welch, of Extra 312, stated that just before making the cross-over movement to the eastward track he observed the way freight on the eastward siding near the station, and while there was some smoke coming from either that train or the west-bound train that had just passed he thought it was high enough not to interfere with his view. He continued to look westward but did not see Extra 5604 until it was close to the station, stating at that time that it must have been the smoke that prevented him from seeing it sooner.

Engine Foreman Gardner, of Extra 312, stated that there was very little wind but he did not notice any drifting smoke. He handled the two switches on the westward track, while Helper Knopp handled the west switch on the yard track and Helper Robinson handled the east switch on the eastward main track. Due to the engine foreman's position on the north side of the tracks his view toward the west was obscured by the cars as they proceeded through the cross-overs, but as soon as the cars had cleared the west switch on the yard track Helper Knopp called out a warning. His engine was then about at the frog of the cross-over between the main tracks, and Engine Foreman Gardner signaled the engineman to continue backing up and to get out of the way and he warned the employees in the cars. He estimated the speed of his own train to have been about 18 miles per hour at the time of accident and the speed of Extra 5604 to have been about 35 or 38 miles per hour when it first came into his view. He stated that at the time of the accident his train was classed as a passenger train and should have been protected in accordance with Rule 99.

Helper Knopp, of Extra 312, stated that he thought it was five or six minutes from the time they left the station until the west-bound extra passed so that he could line the first switch for his train to cross over to the eastward main. Due to the west-bound train having just passed he was unable to see anything coming from the west, but as soon as his own train had cleared the west switch he lined it back, looked westward and saw the east-bound train approaching. He immediately warned his engine foreman, gave his engineman a signal to continue backing up eastward and flagged Extra 5604 with his hands. He thought that train was about at the station or a short distance east thereof when he first saw it; it was working steam. As it approached, however, he thought the brakes must have been applied

as he saw the engine slow up and give a lunge, but he did not notice whether fire was flying from the wheels. He was unable to estimate the speed of Extra 5604, but stated that the usual speed of east-bound second-class trains through West Burlington Yard is about 45 or 50 miles per hour when the track is clear. The movement of his own train was made in the usual manner, and he had never considered it necessary to furnish flag protection after having been cleared, and he considered the east-bound signal adequate protection for the cross-over movement. He thought it was about 4:48 p.m. when the signal went to the stop position.

Helper Robinson, of Extra 312, stated that as soon as the west-bound extra passed he crossed over to the south side of the eastward track, looked westward and saw No. 86 heading in on the siding. He threw the switch, saw the signal go to stop position, and when he again looked westward he saw Extra 5604 about 10 car lengths east of the station. At that time his engine was at the eastward main track switch and he immediately warned his engine-man. He estimated the speed of his own train to have been about 20 miles per hour at the time of collision. He did not think that the switch had been thrown in time to operate signal S-2100 before the passage of Extra 5604. From his position at the eastward main track cross-over switch the range of vision to the west is about 4 miles but while he was handling the switch for the cross-over movement smoke from the westbound extra obstructed his view.

Engineman Powell, of Extra 5604, stated that an air brake test was made before leaving Ottumwa and the brakes functioned properly en route. On approaching signal S-2110 it displayed a caution indication and he reduced the speed of his train to about 20 miles per hour; the signal cleared, however, before he passed it. He received a clear indication at signal S-2100 and approaching West Burlington station the speed was about 45 miles per hour. When about 1,600 feet from the stop-and-stay signal the indication changed from clear to stop. He immediately applied the air brakes in emergency and opened the sanders and thought the speed had been reduced to about 10 or 15 miles per hour when the collision occurred. His engine struck the rear end of the shop train at the eastward main track switch and then traveled a distance of 8 or 9 car lengths before stopping. He did not see the shop train until he had reached a point about 800 feet west of the stop-and-stay signal; at that time the shop train was on the westward track. Engineman Powell stated that he understood the requirements of rule 93 and he also understood that within yard limits the automatic block signals do not nullify the requirements of rule 93; however, for years past it has been the practice to operate trains in accordance with



signal indications within yard limits at West Burlington. He has been operating over that territory for many years, and from his experience on the yard engine and while firing for other enginemen it was his observation that other enginemen rely on the block signals to govern the rate of speed. On the day of the accident he was operating his train at the usual speed through West Burlington.

Fireman Fox, of Extra 5604, estimated the speed of his train to have been 40 or 45 miles per hour on entering the yard limits. The engineman sounded two crossing whistle signals and also the station whistle signal. There was nothing to interfere with his view ahead, but he turned his head away an instant and when he looked ahead again he saw that the stop-and-stay signal was in stop position; the engineman and the head brakeman apparently saw it at the same time. He thought the speed had been reduced to 8 or 10 miles per hour at the time of the accident. Fireman Fox also stated that enginemen operating through West Burlington yard rely to a great extent on the block signals, that is, if the track is seen to be clear.

Head Brakeman Netsell, of Extra 5604, stated that while their engine was west of the station there was an interval of time when the smoke from the west-bound extra interfered with his vision and after the smoke cleared away he first saw the stop-and-stay signal displaying a stop indication; at that time his engine was passing the station at a speed of about 45 miles per hour. He called the stop indication to the engineman who immediately made an emergency application of the brake.

Conductor Parsons, of Extra 5604, estimated the speed of his train on passing through the West Burlington Yard as between 45 and 50 miles per hour, stating that it was the usual speed in that territory providing the block signals are clear, and they have never been criticised for going through there at that speed. He understood that signal indications do not affect the application of Rule 93 in yard limits. The accident occurred at 4:50 p.m. At the time of collision he estimated that his train was running between 12 and 15 miles per hour.

Operator Stroup, at West Burlington, stated that he asked the dispatcher to clear the shop train and the dispatcher advised him that there was an extra out of Burlington at 4:28 p.m., that No. 86 was out of Danville at 4:19 p.m., and that he did not think Extra 5604 would interfere. No. 86 cleared the main track at 4:40 p.m., and he cleared the shop train at that time. Soon after the shop train left the station the dispatcher told him that Extra 5604 was out of Danville. He immediately tried to flag

the shop train but without success. He has an understanding with the crew of the shop train to the effect that he will display the westward train-order signal if he wants to stop them after they have left the station, but in this case he could not display the signal as the west-bound extra was approaching and he did not want to take any chance of stopping that train suddenly. As the engine of this train passed him he gave the engineman a signal to sound the whistle to attract the attention of the shop train's crew, and continued to give stop signals until he saw the train start through the cross-over. He then reported to the dispatcher that the shop train had gone and just then Extra 5604 passed the station at a speed of about 55 or 60 miles per hour; at that time a few cars of the west-bound extra were still east of the station. He stated that he gave the stop signals from a high platform near the station but he thought his signals could not be seen due to the smoke of the passing west-bound train and No. 86, the engine of the latter train stopping about opposite the station. It did not occur to him to use the eastward train-order signal to stop Extra 5604.

Dispatcher Walter, at West Burlington, stated that he advised the operator that No. 86 would probably head in on the siding for Extra 5604, that is, if it arrived at 4:40 p.m., the time of Extra 5604 out of Danville. At that time he told the operator to clear the shop train and to advise the shop crew relative to Extra 5604 and also the west-bound extra out of Burlington. About 4:42 p.m. the operator advised him that he thought the shop train was waiting at the east end of the yard for the west-bound extra. The dispatcher informed the operator that Extra 5604 was by Danville at 4:39 p.m. and that if the shop train was going to be delayed by the west-bound extra, to hold the shop train and let Extra 5604 go ahead. About 4:49 p.m., the time of the accident, the operator advised him that he could not stop the shop train. Dispatcher Walter stated that he cleared the shop train in the usual manner, but that he did not expect the west-bound extra to delay it.

Conductor McCulloch, of Extra 5359 West, stated that his caboose was about 2 car lengths east of the station when the engine of Extra 5604 passed at a speed of 40 or 45 miles per hour, and that the steam on that engine was then shut off; soon afterward he heard the action of the brakes on the east-bound train. His train was running 30 to 35 miles per hour at that time.

Engineman McMurray, of No. 86, stated that as his engine passed the station on the eastward siding he saw the east-bound stop-and-stay signal change from proceed to stop, and the engine

of Extra 5604 was then passing his engine. He called out to his fireman who told him that the engineman of Extra 5604 had applied the air brakes. While it was hazy due to the smoke from the west-bound extra, it did not interfere with his view of the signal when it changed.

Engineman Dicner of the west-bound extra stated that engine 5604 was running about 45 miles per hour when it passed his engine; this he described as ordinary speed.

Conductor Bradshaw, of No. 86, stated that he was on the rear platform as his train pulled in on the siding and he particularly noticed signal S-2100 displaying a clear indication after his train had cleared the main track and this signal remained in clear position up to the time Extra 5604 passed it.

Signal Maintainer Davis stated that he tested the signals involved after the accident and found them in good condition and functioning as intended.

During the examination of employees involved in this accident expressions of opinion were made by officials, either in the form of leading questions or as direct statements; in substance as follows:

General Manager Aydelott expressed the opinion that it was possible to go through some yard limits at a pretty fair speed and still be safe provided the track was tangent, the visibility good, and there were no trains in view that could possibly get out, but, on the other hand, trains or engines might enter the main track at any time without regard for an approaching train.

General Superintendent Grasinger indicated his belief that the terms of rule 93 expressed the intended meaning as clearly as possible. He made the following statement: "There isn't any rule itself that sets up speeds - only as the way is seen or known to be clear, and no one could attempt to set up speed limits whether you were going 4 or 40 miles per hour."

Train Rules Examiner Shults said, "You cannot go through a yard limit 45 or 50 miles per hour - this has been done before and always results in disaster."

#### Discussion

According to the evidence, the crossover movement of the shop train was made in the usual manner; no flag protection was

provided as required by rule, and it is not the practice to provide flag protection when such a movement is made. As soon as a west-bound extra had passed, the train crew lined the route for their train to cross over to the eastward track, and the indication of the stop-and-stay signal changed from proceed to stop. The shop train proceeded through the cross-over at a speed of 8 or 10 miles per hour and as the last car cleared the switch of the yard track Helper Knopp lined the switch back and <sup>west</sup> then saw Extra 5604 approaching at a distance of approximately  $\frac{1}{2}$  mile; at that time he tried to flag the approaching train with his hands. The engineman of the shop train was immediately warned and he had increased the speed of his train to between 18 and 23 miles per hour when the collision occurred.

Since the shop train was carrying passengers, a definite requirement to protect their train was imposed by rule 95; furthermore, this crew was aware of the usual speeds maintained by freight trains in this territory. Proper protection of this train would probably have prevented the accident.

As Extra 5604 approached signal S-2110, the entrance to yard limits, that signal displayed a caution indication, but cleared before the train passed it. Signal S-2100 displayed a clear indication and the train was moving at a speed of approximately 45 to 50 miles per hour when the indication of the stop-and-stay signal changed from clear to stop; at that time the train was about 1,600 feet from it. The engineman immediately applied the air brakes in emergency, and the speed had been considerably reduced when the collision occurred.

Rule 93 is designed to permit the movement of trains through yard limits at the maximum speed consistent with the range of vision, and statements of various officials indicated that it was so interpreted by them; although one official expressed the view that a speed of 45 to 50 miles per hour was not permissible within yard limits, another expressed the view that while it was proper for trains to be operated at fair speed through yard limits, it was unnecessary for trains about to occupy the main track to give consideration to approaching trains.

Although the location of the cross-over switches involved in this accident is plainly visible for a long distance, the curve at the eastern end of the yard limits prevents the engineman of an east-bound train from seeing to the extreme end of the yard limits; furthermore, within yard limits a clear indication of a block signal gives no assurance that the track governed by that signal will not be occupied immediately ahead of an approaching train. The evidence clearly shows that Extra 5604 was being

operated at a relatively high rate of speed through the yard limits and that this was in accordance with common practice; the shop train started across to the eastward track when the approaching freight train, in view of its speed, was less than stopping distance away.

According to the evidence, for a long period of time it has been the practice for other than first-class trains to be operated through the yard limits at West Burlington at speeds of between 45 and 50 miles per hour under clear block-signal indications, and this practice has continued apparently with the knowledge of, and without criticism by, operating officials of this railroad. A construction of the yard-limit rule which permits high-speed main-line movements and at the same time does not impose compensating restrictions upon the use of main track by switch engines and other than first-class trains is bound sooner or later to result in accident. Had Extra 5604 been operated under control within the yard limits at West Burlington, this accident probably would have been averted.

There was considerable discrepancy in the estimates made by the members of the trains involved regarding the speed of their respective trains at the time of accident. The fact that the trains moved approximately 600 feet after the collision had occurred, with the brakes on the freight train applied in emergency, indicates that the highest estimate, 23 miles per hour, made by a member of the crew of Extra 312, is probably most nearly correct, and it follows, therefore, that Extra 5604 was moving at a somewhat higher rate of speed.

#### Conclusion

This accident was caused by the failure of Extra 312 to provide flag protection within yard limits while carrying passengers, and the failure of Extra 5604 to be operated under control within yard limits.

#### Recommendation

It is evident that there has been a lack of proper supervision of operating practices in this territory, and it is recommended that operating officials immediately take such steps as may be necessary to provide for safe operation within yard limits.

Respectfully submitted,

W. J. PATTERSON  
Director.