

## INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN  
ACCIDENT ON THE SOUTHERN RAILWAY NEAR PIEDMONT, S. C.,  
ON AUGUST 28, 1934.

October 30, 1934.

To the Commission:

On August 28, 1934, there was a derailment of a freight train on the Southern Railway near Piedmont, S. C., which resulted in the death of two employees and the injury of one employee.

## Location and method of operation

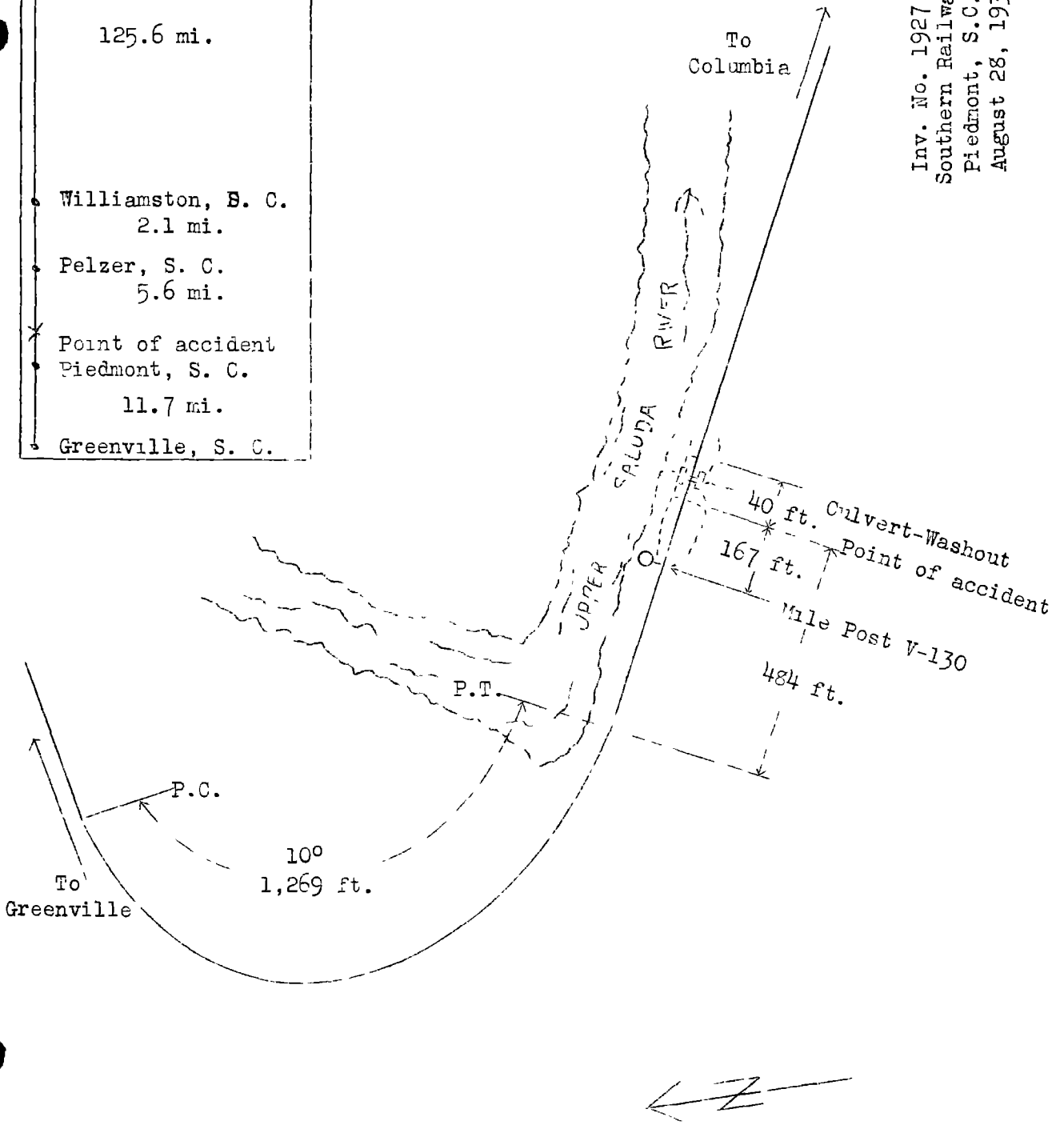
This accident occurred on that part of the Columbia Division extending between Greenville and Columbia, S. C., a distance of 145 miles, in the vicinity of the point of accident this is a single-track line over which trains are operated by time table and train orders, no block-signal system being in use. The accident occurred about 3 miles east of Piedmont, at a culvert located 137 feet east of mile post V-130; approaching this point from the west, there is a 10° curve to the left, 1,269 feet in length, followed by 434 feet of tangent to the culvert, this tangent extending for a considerable distance beyond the culvert. The grade is descending for east-bound trains, varying from 0.95 to 0.12 percent, being at its minimum at the point of accident.

The track is laid with 75-pound rails, 33 feet in length, with an average of 21 ties to the rail length, ballasted with cinders and well maintained. At the point of accident there is a dirt fill about 18 feet in width and 10 feet in height. The Upper Saluda River parallels the track on the north at this point, the flow being eastward. The culvert involved in this accident consists of four sections of 36-inch cast-iron pipe, cemented together at the joints and supported at each end by a concrete headwall 3 feet thick, 8 feet high and 15 feet wide. The culvert drains the water from the watershed on the south side of the track and discharges it into the Upper Saluda River on the opposite side.

At the time of the accident, which occurred about 3:50 a.m., the weather was clear, but a short time before there had been an unusually hard rain in this locality.

Inv. No. 1927  
Southern Railway  
Piedmont, S.C.  
August 28, 1934

• Columbia, S. C.	
	125.6 mi.
• Williamston, B. C.	2.1 mi.
• Pelzer, S. C.	5.6 mi.
* Point of accident	
• Piedmont, S. C.	11.7 mi.
• Greenville, S. C.	



### Description

East-bound freight train Extra 820 consisted of 21 loaded cars, 1 express car, and a caboose, hauled by engine 820, and was in charge of Conductor Lee and Engineman Carter. This train left Greenville, 11.7 miles west of Piedmont, at 3:30 p.m., according to the train sheet, and on reaching a point about 3 miles east of Piedmont it was derailed by a washout while traveling at a speed estimated to have been between 12 and 15 miles per hour.

Engine 820, its tender, and the first seven cars in the train were derailed; the engine stopped in an upright position in line with the track, and the cars were scattered about on both sides of the track. The employees killed were the fireman and brakeman, while the employee injured was the engineman.

### Summary of evidence

Engineman Carter stated that before departing from Greenville he was unaware of any unusual water conditions and that no orders relative to high water were received, nor did he see any indication of high water en route. There are two sharp curves located just west of the tangent upon which the washout occurred and the speed of freight trains around these curves is restricted by slow boards to 15 miles per hour; the headlight was burning brightly and just after the engine had rounded the curves at a speed of about 12 or 15 miles per hour and reached the straight track, he looked ahead and everything appeared to be all right. Engineman Carter then decided to increase speed, but on reaching a point about an engine length from the culvert he saw that the fill had given way, the washout appearing to be about 12 feet wide, although the ties and rails were in position; he immediately applied the air brakes in emergency and closed the throttle, following which the engine went into the hole, dropping down on one side and throwing him out of the window. Engineman Carter said that he had been working in this territory for 25 years but had never heard of any previous trouble from high water at this point.

Conductor Lee and Flagman Sauls were riding in the caboose; the first they knew of anything wrong was when the air brakes were applied in emergency and on going ahead to ascertain what had happened they saw that a washout had been encountered, the engine having gotten across and the tender and cars piling up in the washout. Conductor Lee said that on the day prior to the accident, on the west-bound trip, his train passed the point where the washout occurred at about 10:30 a.m., but at that

time no rain was encountered in that territory, and he did not know of any unusual rainfall at Greenville, where he stayed that night. After the accident, however, he noticed signs of an unusually heavy rain storm having occurred and it was plainly evident that water had backed up against the fill a short time previously, while on his way back to Piedmont to report the accident he noticed where water had been over the ties west of where the washout occurred, and considerable debris, such as brush, leaves, grass, weeds, etc., had been washed down off the nearby hills. It was Conductor Lee's opinion the weight of the engine disturbed the fill as it passed over it, causing it to give way so quickly that the engine did not quite have time to get across.

Flagman Sauls said that a nearby resident who assisted him in caring for the injured engineer told him there had been an unusually heavy rain storm in that vicinity during the night, within an area about 3 miles long and 2 miles wide, but that very little rain had fallen at Pelzer, 5.6 miles east of Piedmont. Flagman Sauls further stated that subsequently he saw where the fill had sloughed off on the north side of the track at a point about 2 car lengths from where the caboose stood or about 15 car lengths from the point of accident.

Section Foreman Leopard stated that no rain fell during the day; on the night of the accident he was at his headquarters, Williamston, located 7.7 miles east of Piedmont, and no rain fell at that point. During heavy rains or unusual weather conditions he is required to patrol the track, but in this case he was unaware there had been a storm at the point where the washout occurred until he arrived there following the accident. On his way to that point he noticed where water had been over the track about  $\frac{1}{2}$  mile east of the culvert, sloughing off the fill on one side. He was last over the track where the accident occurred 3 days prior to its occurrence, and he last inspected the culvert about 1 month previously; the culvert was in good condition at that time, the pipe was clean throughout, and there was no indication of the headwall on the lower end being undermined or cracked; ordinarily only a very small stream of water flowed through the pipe. Section Foreman Leopard had been on this particular section for a period of 2 years, and during that time he had not experienced any trouble with high water at this location.

Assistant Roadmaster Blackwell was of the opinion that the fill sloughed off and took the lower headwall with it, or else that the volume of water going through the pipe cut under the lower headwall and undermined it, causing the headwall to drop over, taking the pipe with it and breaking the second joint loose, thus allowing the water to come out through the pipe and wash away the fill. Acting Bridge Supervisor McAlhaney practically agreed with this idea and thought it accounted for water

backing up on the upstream side. Assistant Roadmaster Blackwell also said there was very little indication that driftwood had blocked the upper end of the pipe and caused water to start around the upper headwall, instead of through the pipe. The culvert was well constructed and the pipe sufficiently large to accommodate any flow of water from a heavy storm, and the indications were that the water against the fill did not reach a depth of more than 2 feet above the pipe; he thought that the fill was gone from under the ties, leaving the track swinging, before the engine reached the culvert.

Supervisor of Bridges and Buildings Connor stated that he last inspected this culvert during September, 1933, and at that time everything about it was in good condition; he did not know when the cast-iron pipe was installed, but it was prior to 1912. The ditch on the lower side was about 18 inches below the bottom of the pipe and there was no indication of the lower headwall being undermined at the time of his last inspection.

Assistant Superintendent Cheney stated that he was informed by a resident who lives about 1 mile from the point of accident that rain started about 9 p.m. on the night of the accident and lasted about 2 hours, being the heaviest rain he had known of in the more than 30 years he had lived there, while some people at Piedmont told him that the rain at that point was just an ordinary hard rain and lasted about 1½ hours.

#### Conclusions

This accident was caused by a washout.

The evidence indicated that several hours prior to the accident an unusual storm of cloudburst proportions had occurred within a small area which included the territory drained by the culvert, and apparently the volume of water to be drained away at this particular point had been sufficient to undermine the lower headwall at the discharge end of the culvert, causing it to collapse and to break off the cast-iron drain pipe at one of the joints, retarding the free flow of the water through the pipe and resulting in the water backing up on the upper side and also washing out the fill to a considerable extent. It was evident that the rails and ties remained in place, so that the engineer was unaware of anything wrong until he saw that the fill had given way at the culvert when it was only about an engine length distant. The culvert involved was constructed more than 20 years ago and had carried off all water from the watershed during that period without incident; no trouble of any other nature had been experienced

from high water at this location, and it was clear in this particular case that the storm was so local in its character that employees a few miles distant did not know of its occurrence.

Respectfully submitted,

W. J. PATTERSON,

Director.