RAILROAD ACCIDENT INVESTIGATION

REPORT NO 4072

THE TEXAS AND PACIFIC RAILWAY COMPANY

ARGYLE, TEXAS

DECEMBER 24, 1965

INTERSTATE COMMERCE COMMISSION

WASHINGTON

SUMMARY

DATE	December 24, 1965	
RAILROAD	Texas and Pacific	
LOCATION	Argyle, Texas	
KIND OF ACCIDENT	Collision	
TRAINS INVOLVED	Freight	Freight
TRAIN NUMBERS	Extra 526 North	Extra MKT 84C North
LOCOMOTIVE NUMBERS	Diesel-electric units MP 526, MP 538, MP 511, MP 481	Diesel-electric units 84C, 75B, 75D, 78F, 69 C
CONSISTS	126 cars, caboose	91 cars, caboose
SPEEDS	35 m p h	27 m p h
OPERATION	Timetable, train orders, automatic block-signal system	
TRACK	Single, tangent 1 21 percent descending grade northward	
WEATHER	Cloudy	
TIME	4 53 a m	
CASUALTIES	4 killed, 2 injured	
CAUSE	Failure of the T&P train dispatcher and T&P conductor to provide protection for the reverse movement of the T&P train	

RECOMMENDATION

It is recommended that the Texas and Pacific Railway Company take immediate measures to enforce its operating rules

INTERSTATE COMMERCE COMMISSION

RAILROAD SAFETY AND SERVICE BOARD

RAILROAD ACCIDENT INVESTIGATION

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SYNOPSIS

On December 24, 1965, a collision occurred between two freight trains on the Texas and Pacific Railway near Argyle, Texas Four train-service employees were killed and two were injured

The accident was caused by failure of the T&P train dispatcher and T&P conductor to provide protection for the reverse movement of the T&P train

LOCATION AND METHOD OF OPERATION

The accident occurred on that part of the Red River Division of the Texas and Pacific Railway extending between Fort Worth and Whitesboro, Texas, a distance of 71 3 miles In the accident area this is a single-track line over which trains of the Texas and Pacific Railway Company (T&P) and the Missouri-Kansas-Texas Railroad Company of Texas (MKT) operate jointly by T&P operating rules, timetable, train orders, and an automatic block-signal system

The collision occurred on the main track, 31 0 miles north of Fort Worth and 2 9 miles north of Argyle

Automatic signals 2142 and 2124, governing northbound movements on the main track, are 3,726 feet south and 4,814 feet north of the accident point, respectively Automatic signal 2125, governing southbound movements on the main track, is opposite signal 2124

A yard is at Denton, 7 2 miles north of Argyle The south yard-limit sign for Denton is 810 feet south of signal 2124

T&P and MKT radio-telephone facilities operate on different frequencies Thus, there is no direct radio-telephone communication between these carriers The locomotives and cabooses of the T&P and MKT trains involved in the accident had radio-telephone equipment However, the radio equipment on the first diesel-electric unit of the MKT train was inoperative

Details concerning the track signals, T&P operating rules, Red River Division General Order No 5, T&P rules governing the operation of railroad radio communication system, trains, damages, and other factors are set forth in the appendix

DESCRIPTION AND DISCUSSION

Extra 526 North, a northbound T&P freight train consisting of 4 diesel-electric units, 126 cars and a caboose, left Lancaster Yard, Fort Worth, at 2 55 a m on the day of the accident and entered the T&P single-track line involved at FW Tower, 0 5 miles north of the Fort Worth station It passed FW Tower, the last open train order office, at 3 11 a m and passed Argyle approximately 1 hour 10 minutes later As the train continued northward, it entered the block of signal 2142 and moved onto an ascending grade known as Denton Hill Soon thereafter, it passed the south yard-limit sign for Denton and signal 2124 About 4 35 a m , the train stalled on Denton Hill, due to inoperative sanding apparatus on the diesel-electric units, and stopped in the block of signal 2124 with the rear end approximately 4,600 feet north of that signal The engineer then began to inspect the sanding apparatus and other equipment on the diesel-electric units He found that the sanding apparatus of the three rear diesel-electric units would function properly if operated from the control compartment of the second unit Soon afterward, the front brakeman radio-telephoned the caboose and informed the conductor of the situation He stated during the investigation that it was usual practice under such circumstances for a stalled train to back up and make another attempt to surmount the grade

Since its tonnage prevented the train from starting forward from the point where it had stalled, the front brakeman and conductor discussed means by which their train could negotiate Denton Hill, including backing it a sufficient distance for another attempt to reach the summit of the ascending grade After this discussion,

the front brakeman overheard the conductor inform the T&P train dispatcher by radio-telephone that Extra 526 North had stalled on Denton Hill and suggest to the dispatcher that the train might negotiate the ascending grade if it moved back on the main track a sufficient distance for a running start on the grade The front brakeman said he could not hear the dispatcher's responses to the conductor Meanwhile, the engineer reboarded the first diesel-electric unit, and the front brakeman informed him about his conversation with the conductor Two or three minutes later, the conductor radio-telephoned the engineer and instructed him to back the train on the main track whenever he was ready Immediately thereafter, about 4 50 a m , Extra 526 North started to back southward on Denton Hill without either the engineer or front brakeman having any knowledge as to what arrangements had been made for protection of this reverse movement against northbound trains According to the engineer and front brakeman, they did not receive continuous radio-telephone transmission from the conductor or flagman, as required by rule, while the train moved in reverse on Denton Hill

The rear of Extra 526 North passed southward signal 2125, which displayed a Stop-and-Proceed aspect, and backed into the block of northward signal 2142 After passing the south yard-limit sign at Denton, it reached the bottom of Denton Hill and entered an ascending grade southward The engineer and front brakeman heard the conductor announce over the radio-telephone that the caboose had moved onto the ascending grade, and they estimated that the train was backing southward at 15 to 20 miles per hour at this time They said that the brakes applied in emergency soon thereafter and that the train stopped with the front end a few hundred feet north of signal 2124 The engineer stated the front brakeman then radio-telephoned the caboose from the control compartment of the second diesel-electric unit to determine the cause of the emergency brake application, but received no response The engineer further stated he assumed that the flagman had proceeded to the rear after the train stalled on Denton Hill and that the conductor had applied the brakes in emergency to pick up the flagman According to the engineer's statements, the brakes were released approximately three or four minutes later He said that he then started the train forward, or northward, on Denton Hill without having received any radio-telephone communication, or signal to proceed, from the conductor or flagman He further said that after attaining a speed of

approximately 11 miles per hour, the brakes again became applied in emergency and the train stopped with the front end about 990 feet north of signal 2124

The front brakeman said he was in the control compartment of the second diesel-electric unit, operating the sanding apparatus of the three rear diesel-electric units, when the second emergency brake application occurred He stated that after determining that the train brake-pipe pressure was not being restored and making an unsuccessful attempt to communicate by radio-telephone with the conductor, he went to the rear of the train to ascertain the cause of the second emergency brake application According to his statement, then he found that the rear of his train had been struck by Extra MKT 84C North The engineer stated that he did not know that an accident had occurred until about one hour after the train was stopped by the second emergency brake application

The conductor and flagman of Extra 526 North, apparently on the caboose at the time of the accident, were killed The engineer and front brakeman of Extra MKT 84C North were also killed, and the fireman and conductor of that train were injured

Extra MKT 84C North, a northbound MKT freight train consisting of 5 diesel-electric units, 91 cars and a caboose, left Ney Yard, Fort Worth, at 3 20 a m and entered the T&P single-track line at FW Tower about 3 47 a m It passed Argyle about one hour later and approached signal 2142 at 24 miles per hour, as indicated by the speed-recording tape According to the fireman, he and the engineer, as well as the front brakeman, saw that signal 2142 was displaying an Approach aspect as the locomotive approached and passed it About this time, the engineer shut off power and as the train proceeded on the descending grade immediately south of Denton Hill, its speed increased to between 27 and 29 miles per hour The fireman said he did not see any lighted fusees or hear the explosion of any torpedoes while approaching the accident point, and that he was unaware of anything being wrong until he saw a small white light a few hundred feet ahead He thought at first this was a light on a track motorcar and called it to the attention of the engineer, who promptly applied the train brakes in emergency A few moments later, the front brakeman saw the rear end of Extra 526 North approaching and called a warning to the fireman and engineer Both the front brakeman and fireman then jumped from the locomotive Shortly thereafter, while moving in the block of signal 2142 at 27 miles per hour, the locomotive of Extra MKT 84C

North collided with the rear of Extra 526 North, 2 9 miles north of the Argyle station According to his statements, the fireman saw that Extra 526 North was moving in reverse between 35 and 40 miles per hour just before the collision He did not see the marker lamp at the rear of the caboose of Extra 526 North, or any light on the caboose other than the small white light, before the accident

The conductor of Extra MKT 84C North stated that as the train moved in the vicinity of Argyle, someone at Ney Yard called him by radio-telephone and inquired as to the location of his train The conductor stated that he replied "Argyle " He stated that he heard the same person speak again but, due to radio interference, could not understand what was said Soon thereafter, while looking forward from the bay window of the caboose, the conductor saw that signal 2142 was displaying an Approach aspect The collision occurred a short time after Extra MKT 84C North entered the block of signal 2142, and neither the conductor nor flagman was aware of anything being wrong before that time

When the conductor of Extra 526 North radio-telephoned the T&P train dispatcher and reported the stalling of his train on Denton Hill, he also told the dispatcher that the train could probably negotiate the hill if it moved back on the main track for another running start on the ascending grade The dispatcher replied that Extra 526 North could not make a reverse movement at this time because Extra MKT 84C North was approaching from the rear After further discussion, the dispatcher said he would determine the whereabouts of the MKT train He then telephoned the MKT operator at Ney Yard, Fort Worth, and requested him to radio-telephone Extra MKT 84C North and ascertain its location About one minute later, after being informed by the MKT operator that Extra MKT 84C North was approaching Argyle, the T&P dispatcher told the MKT operator to instruct Extra MKT 84C North to stop immediately as Extra 526 North had stalled on Denton Hill and would back up for another attempt at negotiating the hill The T&P dispatcher stated he also told the MKT operator to advise him as to whether the crew members of the MKT train acknowledged receipt and understanding of these instructions

The T&P dispatcher said the MKT operator telephoned him soon afterward and advised that the conductor of Extra MKT 84C North had been instructed to stop his train immediately According to the dispatcher, the MKT operator also advised that the MKT conductor had acknowledged receipt of these instructions by

saying "OK" The dispatcher stated he then radio-telephoned the conductor of Extra 526 North and informed him that Extra MKT 84C North had been instructed to stop at Argyle He said the conductor replied "OK" The dispatcher further stated that he did not verbally, or by train order, authorize Extra 526 North to back in reverse on Denton Hill, and that he had not known what action the T&P conductor would take after being informed that Extra MKT 84C North had been instructed to stop at Argyle

The MKT operator at Ney Yard said that when the T&P dispatcher inquired as to the whereabouts of Extra MKT 84C North, he called that train by radio-telephone and was informed by the conductor that it was in the vicinity of Argyle He promptly relayed this information to the T&P dispatcher, who then requested him to radio-telephone Extra MKT 84C North again and inform the crew members that Extra 526 North had stalled on Denton Hill The MKT operator stated that, in addition, the T&P dispatcher told him to instruct Extra MKT 84C North to stop at Argyle and wait there for further instructions According to the MKT operator, he radio-telephoned the conductor of Extra MKT 84C North again and repeated to him the instructions from the T&P dispatcher The MKT operator said the radio-telephone became noisy about this time, then became silent, and he was unable to communicate with the conductor further He said he promptly telephoned the T&P dispatcher and informed him that his instructions had been transmitted to the MKT conductor, but it was not known whether the MKT conductor understood them He further said that in reply to an inquiry from the T&P dispatcher, he reiterated that he did not know whether the MKT conductor had understood or acknowledged the instructions to stop at Argyle

Shortly after the accident, MKT officials, the conductor and flagman of Extra MKT 84C North, and members of the Denton police department discussed the accident circumstances with the front brakeman of Extra 526 North It is the consensus of their statements the front brakeman told them that Extra 526 North had stalled on Denton Hill and was backing down the hill at a relatively high rate of speed when the collision occurred

Examination of the locomotive of Extra 526 North after the accident revealed the sanding apparatus of all four diesel-electric units was inoperative from the sander control valve of the first unit, due to the main reservoir air supply valve of the sander relays of the first unit being in closed position The investigation disclosed that the sanding apparatus of the locomotive was not

tested, as required by the Commission's rules and instructions, before departure from Fort Worth, and that the locomotive left Fort Worth without the sanding apparatus being in proper operating condition as required by the Locomotive Inspection Law

Because the caboose of Extra 526 North was destroyed, the position of the switches for the electric marker light and sealbeam track light at the south end of the caboose could not be determined

FINDINGS

After Extra 526 North stalled on Denton Hill, it moved backward without required flag protection or train order authority Soon thereafter, it moved out of the Denton yard limits and, without stopping as required, passed southward signal 2125, which displayed a Stop-and-Proceed aspect The engineer and front brakeman apparently were mistaken in their statements as to when the train stopped after the rear portion passed signal 2125 From all indications, Extra 526 North was moving backward in the block between southward signal 2125 and northward signal 2142 at about 35 miles per hour, considerably in excess of the speed authorized by the restrictive aspect displayed by signal 2125, when the rear end was struck by Extra MKT 84C North Since the conductor and flagman were killed, it could not be determined whether they saw Extra MKT 84C North approaching, or whether they took any action to apply the brakes of their train, before the accident

Interference over the radio-telephone system prevented the conductor of Extra MKT 84C North from hearing or understanding the T&P train dispatcher's instruction to stop at Argyle, as relayed by the MKT operator at Ney Yard Because of this and the inoperative radio-telephone apparatus on the locomotive, none of the crew members of Extra MKT 84C North was aware of the reverse movement of Extra 526 North until that train was seen approaching just before the accident

Although the T&P train dispatcher stated he did not know what action the conductor of Extra 526 North would take after being informed that Extra MKT 84C North had been instructed to stop at Argyle, it is evident that he made arrangements with the T&P conductor for Extra 526 North to back down Denton Hill without train order authority, and that he gave tacit consent to this reverse movement Had the T&P train dispatcher not consented

to the reverse movement of Extra 526 North, or had Extra 526 North not moved in reverse without flag protection or train order authority, as required, the accident would have been averted

It is evident in the instant case that improper use of the radio contributed to the cause of the accident and violation of the carrier's operating rules Under the existing circumstances the safe course would have been to double the stalled train to the siding in advance Apparently to minimize delay the train dispatcher made an unsuccessful effort to restrict the following MKT train and after he conversed with the conductor of the preceding train its crew members gained the impression they had received permission for a southward movement on the grade and this train then moved in reverse until it collided with the following train which had not been restricted at Argyle, as was intended The use of radio should be surrounded with the necessary safeguards to preclude employees acting on partial or faulty receipt of radio-issued instructions, or instructions contravening operating rules

CAUSE

This accident was caused by failure of the T&P train dispatcher and T&P conductor to provide protection for the reverse movement of the T&P train

RECOMMENDATION

It is recommended that the Texas and Pacific Railway Company take immediate measures to enforce its operating rules

Dated at Washington, D C this 12th *day of* May 1966
By the Commission, Railroad Safety and Service Board

H NEIL GARSON
Secretary

(SEAL)

APPENDIX

Track

From the south on the main track there are, in succession, a long tangent, a 0°20' curve to the left 530 feet, and a tangent 357 feet to the accident point and 46 feet northward From the north there are, successively, a series of tangents and curves, then a tangent 2,062 feet, 1°57' curve to the left 1,301 feet, and the tangent on which the collision occurred

From the south, the average grade is 0 77 percent descending throughout a considerable distance to the collision point and 2,000 feet northward, then an average of 0 90 percent ascending 2 4 miles to the summit of Denton Hill In the immediate vicinity of the accident point, the grade is 1 21 percent descending northward

Signals

Automatic signals 2142, 2124 and 2125 are of the searchlight color-light type and are approach lighted They are permissive signals with their control circuits arranged on the absolute-permissive block principle The absolute block involved extends between Denton and Roanoke, 4 3 miles north and 12 0 miles south of the accident point, respectively The aspects applicable to this investigation and the corresponding indications and names are as follows

Signal	*Aspect*	*Indication*	*Name*
2142	Yellow	Proceed immediately reducing to 40 m p h or slower if necessary, prepared to stop before reaching next signal	Approach
2124 2142 2125	Red	Stop, then Proceed at Low speed through the entire block	Stop and proceed

The circuits are so arranged that when the block of signal 2124 is occupied by a northbound train and the block of signal 2142 is unoccupied, signals 2142 and 2124 display Approach and Stop-and-Proceed aspects, respectively Under these circumstances, all

the southward permissive signals, including signal 2125, within the absolute block extending between Denton and Roanoke display Stop-and-Proceed aspects If the northbound train occupying the block of signal 2124 makes a reverse movement and reenters the block of signal 2142, the latter signal displays a Stop-and-Proceed aspect

T&P Uniform Code of Operating Rules

Low Speed. - A speed that will permit stopping short of trains, engine, obstruction or switch not properly lined *** but not exceeding 15 miles per hour

35 Flagging Signals - The following signals will be used by flagmen

***

Night Signals - A white light
Not less than 10 torpedoes and 6 red fusees

80 Communication Concerning Train Movement - When a member of train *** crew communicates with train dispatcher *** or operator, he will give his name, occupation, location and train *** number, and will repeat back the instructions received.

99 Flagging Rule. - ***

When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection, placing two torpedoes and, when necessary, in addition, displaying lighted red fusees. ***

99(c) Conductors must not permit other duties to interfere with the proper protection of their train, and must require the flagman to act promptly and in accordance with the rules

101(a). Trainmen must know by speed of train, grade or caboose air gauge, that train is being handled safely and under control, and, when necessary, take immediate action to get train under safe control

RULES APPLICABLE TO *** BLOCK *** SIGNALS

327 Where Stop Must Be Made - A train or engine must stop before the leading wheels pass a Stop, or Stop, Then Proceed at Low Speed, indication ***

354 Reverse Movements - Unless modified by rules governing movement of trains and engines by block signals, a train or engine having passed beyond the limits of a block must not back into that block without flag protection against opposing trains or engines, except as follows

(1) On train order authority permitting reverse movement and a clear signal indication *** is displayed to re-enter the block.

***

T&P Rules Governing the Operation of a Railroad Communication System

RADIO RULES

12 1 Except as herein authorized, these radio regulations and rules do not modify or supersede any rule of the Uniform Code of Operating Rules, ***

12 2 The Railroad Radio Communication system must not be used in any manner which would cause a violation of any Uniform Code of Operating Rule ***

17 (a) When movement of a train or cut of cars is being made with the engine on trailing end, *** and the movement is being controlled by radio communication *** the employee transmitting the instructions for the movement must transmit continuously and the failure of engineer to receive continuous transmission must be construed as a STOP signal

Red River Division General Order No 5 dated January 1, 1965

***

Radio communication may be used

***

(b). By an operator to relay a train order *** to another operator, or to relay direct to a conductor or engineer, or both, a train order addressed to their train at a location not a train order office or at which the office is closed

***

Trains

Extra 526 North consisted of road-switcher type diesel-electric units MP 526, MP 538, MP 511 and MP 481, coupled in multiple-unit control, 126 cars and a caboose The train brakes had been tested and had functioned properly As the train backed on the main track toward the accident point, the engineer and front brakeman, the only crew members on the locomotive, were in the control compartment near the front of the first diesel-electric unit The conductor and flagman were on the caboose

The caboose of Extra 526 North was equipped with three 25-gallon drums of liquid propane gas, which was used as fuel for a gas operated refrigerator and heater The rear end of the caboose was provided with an electric marker light having red lens It was mounted just below the roof, midway between the sides of the caboose with the red lens facing to the rear The rear of the caboose was also provided with a small seal beam electric track

light having white lens facing to the rear This light was mounted on a bracket 48 inches above the floor of the platform, directly below the marker light Both the track light and marker light were operated from switches inside the caboose The rear end of the caboose also had an A-2 caboose valve, for applying train brakes from the rear of trains

Extra MKT 84C North consisted of car-body type diesel-electric units 84C, 75B, 75D, 78F and 69C, coupled in multiple-unit control, 91 cars and a caboose It was manned by MKT employees The train brakes had been tested and had functioned properly when used en route The headlight was lighted As the train approached the accident point, the engineer, fireman and front brakeman were in the control compartment at the front of the locomotive The conductor and flagman were in the caboose

Damages

The liquid propane gas in the caboose of Extra 526 North ignited as a result of the accident, and flames spread over derailed equipment of both trains

The caboose and the 101st to 126th cars, inclusive, of Extra 526 North were derailed and stopped in various positions on or near the track structure as shown in a photograph appended to this report Of the derailed equipment, the caboose and 16 cars were destroyed, and 10 cars were heavily damaged

Extra MKT 84C North stopped with the front end 167 feet north of the collision point All five diesel-electric units were derailed The 36th to 40th cars and the 55th to 60th cars, inclusive, also derailed when the train buckled due to the impact The first diesel-electric unit overturned onto its right side and stopped on the east side of the track structure at a 45-degree angle to the track and with the front end on the east side of the track structure The second unit stopped upright, in reverse position, alongside the underframe of the first unit The third, fourth and fifth units stopped upright on and in line with the track structure immediately to the rear of the second unit The derailed cars stopped in various positions on or near the track structure The first, second and third diesel-electric units were destroyed, the fourth unit was heavily damaged, and the fifth unit was undamaged

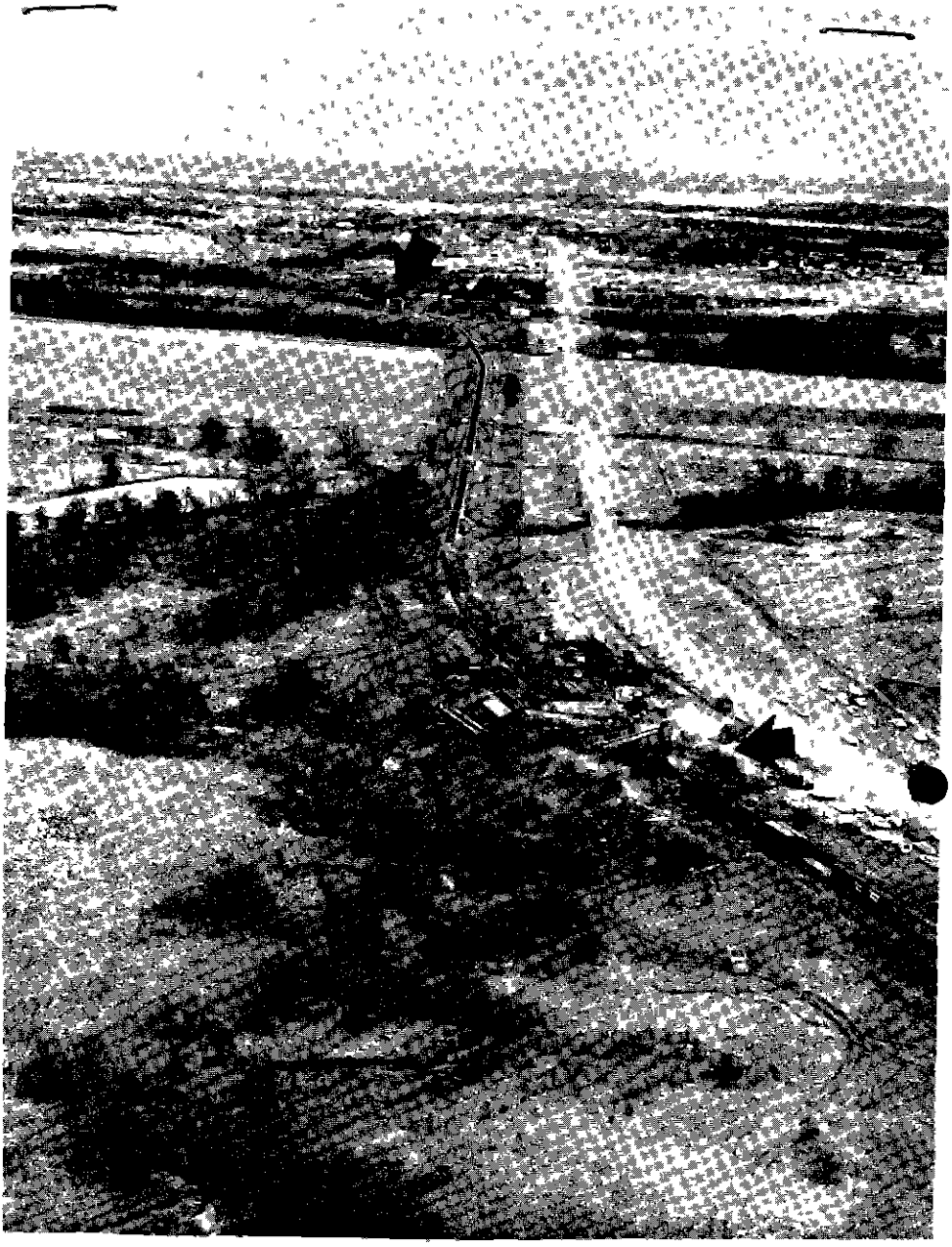
Of the derailed and damaged cars, six were heavily damaged and seven were somewhat damaged

Other Factors

The accident occurred at 4 55 a m , in cloudy weather

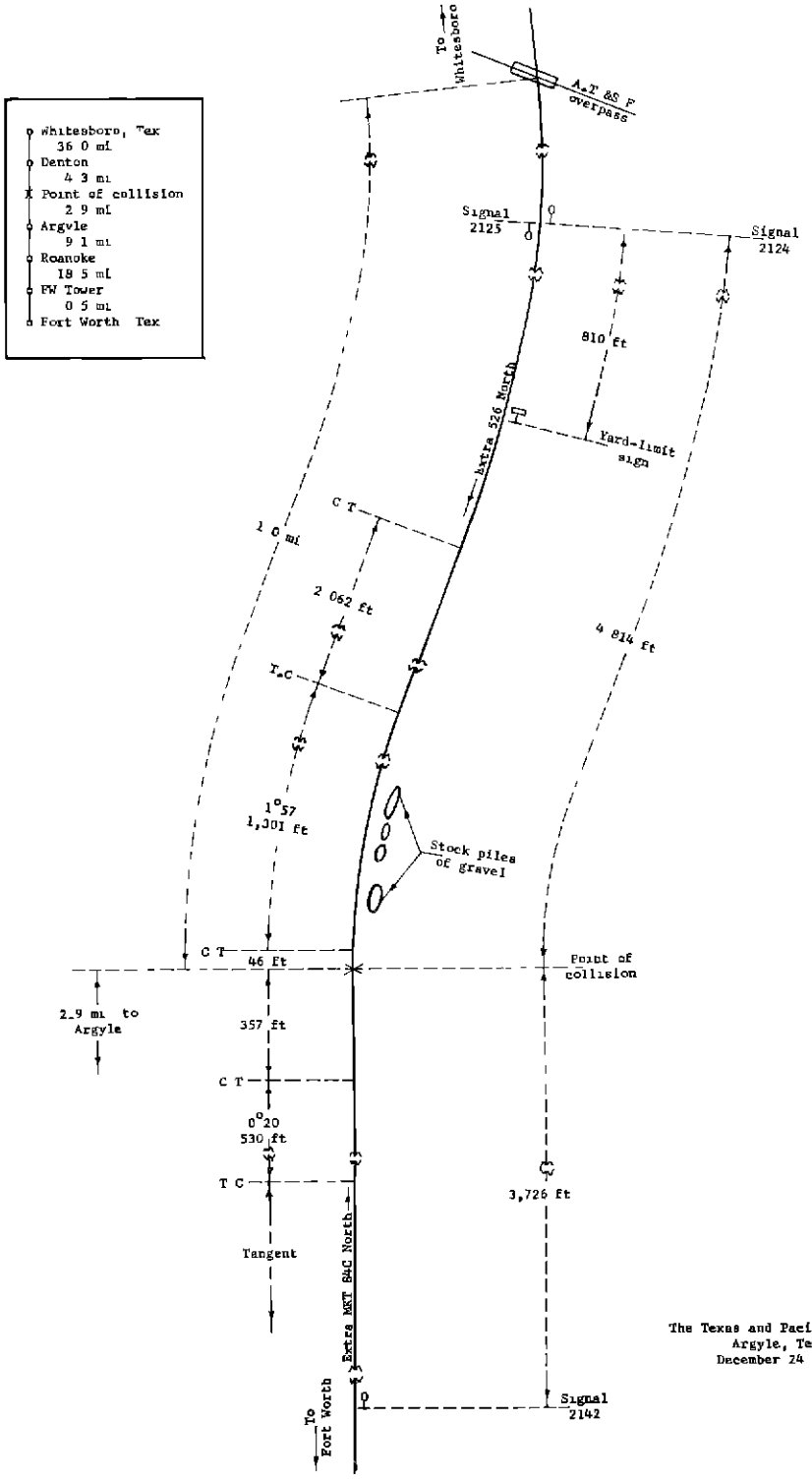
The maximum authorized speed for freight trains in the territory involved is 60 miles per hour However, it is restricted to 25 miles per hour when locomotives are shoving trains in reverse movements

A line of the Atchison, Topeka and Santa Fe Railway crosses the T&P main track by means of an overpass 1 0 mile north of the accident In the accident area, there are several trees adjacent to the west side of the track structure On the day involved, there were four highway stock piles of gravel and asphaltic mix in the immediate vicinity of the accident point These piles, which were of considerable height, width and length, were on the east side of the railroad about 50 to 100 feet from the track Because of these piles, trees and track curvature, and the AT&SF overpass, the view between opposing movements approaching the accident point was materially restricted



Northward view Arrows point to Atchison Topeka and Santa Fe Railway overpass and to derailed locomotive units of Extra MKT 84C North

Southward view Arrow points to 1st and 2nd diesel-electric units of Extra MKT 84C North



The Texas and Pacific Railway
Argyle, Texas
December 24 1965

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