BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN

A DIVISION OF THE RAIL CONFERENCE
INTERNATIONAL BROTHERHOOD OF TEAMSTERS

SAFETY TASK FORCE

INDEPENDENCE, OHIO

BEFORE THE NATIONAL TRANSPORTATION SAFETY BOARD

NTSB Accident Number: DCA16FR008

Class: Regional
June 28, 2016

Proposed findings, probable cause, and safety recommendations, in connection with the head-on collision, derailment, and subsequent fire of BNSF Railways Eastbound S-LACLPC1-26K and Westbound Q-CHISBD6-27L, on June 28, 2016 in Panhandle, Texas.

Stephen J. Bruno, BLET-Safety Task Force, National Chairman
Erich M. Jeske, BLET-Safety Task Force, Party Spokesman

FINAL SUBMISSION

Accident Synopsis

On June 28, 2016, at 8:21 a.m. Central Daylight Time ("CDT"),[1] two (2) BNSF Railway trains collided head-on at milepost ("MP") 525.4 on the BNSF's Panhandle Subdivision. Each train was crewed by a Locomotive Engineer and a Conductor. The eastbound striking train (S-LACLPC1-26K) consisted of three (3) locomotives located on the front of their train, fifty-six (56) loaded intermodal platform rail cars[2], and two (2) distributive power units ("DPUs").[3] The struck westbound train (Q-CHISBD6-27L) consisted of five (5) locomotives, all located on the front of their train, and fifty-four (54) loaded intermodal platform rail cars.

The signal and traffic control system was arranged to route the westbound train into the siding at the east control point ("CP") 5261 at MP 526.10. This routing would have had the striking train holding Main track No. 1 at CP 5261; however, the subsequent collision occurred approximately ½ mile east, at MP 525.401. The collision and derailment fatally injured three (3) of the crew members, with the lone survivor being the Locomotive Engineer of the westbound train, who jumped from the moving train prior to impact. According to the National Weather Service at Amarillo International Airport, weather at the time leading up to the accident was 70° F, with visibility of ten (10) miles. Damages are estimated at $16 million.

Train movements in this area are controlled by signal indications given by the centralized traffic control ("CTC") system.[4] The signal system was functioning as intended, with the last signal indication displaying "Stop"[5] for the striking train (S-LACLPC1-26). Eastbound train

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[1] All times throughout this report will be Central Daylight Time ("CDT).

[2] Intermodal platform rail cars refers to types of cars in the intermodal cargo shipping industry. They may be single or multiple platform rail cars that can carry truck trailers, imtermodal tanks and intermodal containers. These platforms range from single platform cars, three (3) platforms per car, and five (5) platforms per car, built to carry containers, truck-trailers, etc.

[3] DPU refers to distributive locomotive units, generally located at the rear end of a train to assist with horsepower and/or control of buff/draft forces.

[4] Centralized Traffic Control (CTC) is a method of establishing movment authority for trains to occupy tracks via signals which are controlled by a Train Dispatcher.

[5] *See* Attachment A.

S-LACLPC1-26K passed the Stop signal at sixty-five (65) miles per hour ("MPH"). A positive train control ("PTC") system[6] was originally scheduled to be operational in this area by the end of 2016.

Train Information:

The two (2) accident trains consisted of the following equipment:

***Eastbound**:* S-LACLPC1-26-K had three (3) locomotives on the front of their train (BNSF 5162, BNSF 7838, BNSF 3967), fifty-six (56) loaded intermodal railcars which totaled 108 loaded platforms, and two (2) rear DPU locomotives. The train weighed 9,120 tons and was approximately 10,209 ft. long.

Westbound: Q-CHISBD-6-27L had five (5) locomotives all located on the front of their train (BNSF 5416, BNSF 7553, BNSF 7907, BNSF 8191, BNSF 5212), fifty-four (54) loaded intermodal railcars which totaled eighty-seven (87) loaded platforms. The train weighed 7,451 tons and was approximately 8,497 feet long.

The Accident:

On June 28, 2016, at 8:21 a.m., the eastbound loaded intermodal train (S-LACLPC1-26K) was operating on the BNSF Railway's Kansas Division, Panhandle Subdivision[7]. The train was traveling at sixty-five (65) MPH on Main Track No. 1 when it passed a signal displaying Stop at CP 5261, and collided head-on with the westbound train (Q-CHISDB6-27L), which was traveling at thirty-seven (37) MPH.

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[6] Positive Train Control (PTC) systems means an information transmission and enforcement system that communicates between signal system and the locomotive and is designed to prevent train to-train collisions, over-speed derailments, incursions into established work zone limits, and the movement of a train through a switch left in the wrong position by enforcing the signal authority through automatic activation of the locomotive's and train's braking systems. The National Transportation Safety Board (NTSB) has named PTC as one of its "most-wanted" initiatives for national transportation safety. *See* https://www.fra.dot.gov/Page/P0564.

[7] *See* Attachment B.

Both train crews consisted of a Locomotive Engineer and a Conductor. The timetable maximum authorized speed ("MAS") on this section of track is seventy (70) MPH, provided that certain conditions of train makeup compliance are met. At the time and location of this accident there were no temporary speed restrictions on the track. The force of the collision ruptured the fuel tanks on the locomotives, causing a fire. This collision and subsequent fire caused the fatal injuries of three (3) crew members.

Post-accident mechanical investigation revealed that the eastbound train's lead three (3) locomotives and first (1st) through ninth (9th) cars derailed, as well as the twenty-first (21st) car. The westbound train's five (5) locomotives derailed, as well as the first three (3) cars.

The wreckage blocked Main Track No. 2 and caused a track occupied indication. The BNSF Train Dispatcher saw the indication of the eastbound train pass the Stop signal on Main Track No.1 and the subsequent track indication caused by the debris field on Main Track No. 2, on his screen. Due to the magnitude of the forces exerted in this collision, the frames of both lead locomotives were the only intact components remaining.

Photo above courtesy of The Federal Bureau of Investigations (FBI) aerial photos. The bottom of the photo is direction east and the top is direction west; these directions also correlate to timetable direction of travel.

Interviews:

The lone surviving crew member — the Locomotive Engineer of the westbound train S-CHISBD6-27L — told investigators that he had an uneventful trip prior to the collision and derailment. At one point on the approach to the Panhandle area, the BNSF Train Dispatcher informed the crew via radio of the meet at Panhandle with the eastbound train. As they approached the town of Panhandle, the Locomotive Engineer noted that he thought the eastbound train had passed a road crossing he knew to be to the west of CP 5261 that would take them to the siding. Once he determined the eastbound had passed this point, he realized they were going to have a head-on collision since they were traveling too fast to get stopped. He stated that he ran for the back door and the Conductor was behind him. He recalled seeing the Conductor behind him as he jumped from the train. After the collision, he escaped to the north side of the wreckage, where he received medical attention and subsequent transportation to Amarillo, TX for treatment of injuries.

The BNSF Train Dispatcher was interviewed via telephone and gave his account of the events. His statements supported the recollection of the lone surviving crew member's testimony. Interviews also were conducted with several eyewitnesses from the area, all of whom shared the same details and depiction of the events.

Human Performance:

Event recorder data was obtained from the trailing units of each trains event recorders that survived. The data was collected eastbound striking trains locomotives BNSF 3967, BNSF 8234 (DPU), and the BNSF 3970 (DPU). Data was collected from the westbound trains' locomotives BNSF 7553, BNSF 7907, BNSF 8191, and BNSF 5212. The investigation of signal functionality and signal event recorder data compared to the train event recorder data establishes that the crew members of train S-LACLPC1-26K failed to properly react to three (3) signals prior to the collision. The evidence and investigation establish that the failure of both operating crew members on eastbound BNSF train S-LACLPC1-26K to react appropriately to signal indications in the field was the primary cause of this accident. The reason why both crew members did not react to the signal indications is unclear. However, we suggest that there are only two (2) possible explanations;

1) Both crew members deliberately ignored three (3) separate signal indications. The last one being a signal to stop and neither of them reacted at all to the imminent collision. We believe that is extremely implausible even inconceivable.

2) Both crew members were somehow incapacitated and unable to react to the signals. We believe this is the most likely explanation, however, we find no conclusive evidence as to how they became incapacitated.

Identifying the root cause of train accidents and implementing changes to enhance safety is essential to preventing similar accidents in the future. In this case the investigation has not been able to determine what prevented the crew from reacting to the three consecutive signals.

Operations:

After examining the operating practices in the area leading up to, and at the area of the collision,

the BLET finds that the following issues were causal factors in this incident. The ineffective use of existing technology allowed the accident to occur. Existing technology such as a train control or speed control systems installed in the infrastructure and the controlling locomotive would have mitigated the damage and injuries and may have prevented the collision. Wayside signal systems convey information to the operating crew including the condition of the track ahead and restrictions on the MAS for the train. Train control and speed control systems are systems that integrate the wayside signal system to the locomotives and can enforce compliance through activation of the train's brakes.

Crew fatigue may have been a contributing factor as well. Despite the fact that they had been off duty prior to the assignment in compliance with the Hours of Service requirements, it is unclear what amount of sleep the crew of the eastbound train had when the received their call for duty and reported for their assignment. The unpredictable nature of assignments in the freight railroad industry can render employees who have been awake for hours unprepared to complete their assignment without being effected by fatigue. The industry's disciplinary based attendance policies chill the employees' willingness to decline assignments when they may not be fatigued at the reporting time but could be fatigued before the end of their assignment. The combination of the two factors continues to be an obvious yet unresolved contributor to the fatigue of operating employees and potential for incapacitation.

Because the morning sunlight was directly in the field of vision of the crew of the eastbound train, the time of day the accident occurred may have exacerbated any fatigue experienced by the crew.

Mechanical:

The National Transportation Safety Board ("NTSB"), Federal Railroad Administration ("FRA"), and BNSF performed a post-accident mechanical inspection and brake test on the rolling stock of both trains. The report on the mechanical condition of the both trains indicated that they were in compliance, with no exceptions. The post-accident inspection of the lead locomotives on train S-LACLPC1-26K (BNSF 5162) and Q-CHISBD6-27L (BNSF 5416) could not establish that the cab crashworthiness protections performed as intended, and furnished a survivable environment for the crew. Both locomotives were destroyed with only the frames remaining intact. The evidence

establishes that the structural crashworthiness of the cab compartment was insufficient to protect the crews from the forces of this collision and thus a possible contributing factor to the fatalities in this incident.

Signal System:

A post-accident testing and examination from the downloaded event recorder of the signal system establishes that all signal system components performed as designed and intended. As previously noted, however, the rudimentary nature of this basic signal system provides virtually no redundant safety capabilities and thus was a contributing factor in this accident. Readily available technology, such as train control or speed control systems installed in the infrastructure and the controlling locomotive, would have mitigated the damage and injuries and may have prevented this collision. A PTC system overlaid on the existing wayside signal system would have prevented this collision.

Track:

A post-accident examination of the track system leading up to, and including the area of the incident, indicates that it performed as designed. We conclude that track was not a contributing or a causal factor in this incident.

PROBABLE CAUSE

The Brotherhood of Locomotive Engineers and Trainmen ("BLET") finds that the probable cause of this accident was the failure of the eastbound train (S-LACLPC1-26K) to stop at a signal displaying a Stop indication at CP 5261. This failure subsequently resulted in a head-on collision, which fatally injured three (3) crew members on two (2) trains. The lack of an operating and proven effective PTC system at the location of the collision played a direct causal role. Due to nearby track construction at the time, the PTC system had not been activated. With a functioning PTC system in place, this system would have provided an extra layer of protection that would have safely stopped not one, but both trains. Crew fatigue may have been a contributing factor as well — given the time of day the accident occurred — and may have been exacerbated by morning sunlight directly in the field of vision of the crew of the eastbound train.

PROPOSED RECOMMENDATIONS

TO BNSF RAILWAY:

1. Immediately implement management standards that require the train line ups to be accurate to within ten (10) minutes. As with all fatigue mitigation elements, accurate information is key to optimizing rest opportunities. If an employee cannot reasonably predict when they are going on duty, there is no way they can obtain sufficient restorative sleep prior to reporting on duty.

TO THE ASSOCIATION OF AMERICAN RAILROADS ("AAR"):

1. Immediately implement an AAR operational standard that requires train line ups to be accurate to within ten (10) minutes. As with all fatigue mitigation elements, accurate information is key to optimizing rest opportunities. If an employee cannot reasonably predict when they are going on duty, there is no way they can obtain sufficient restorative sleep prior to reporting on duty.

TO THE FEDERAL RAILROAD ADMINISTRATION ("FRA"):

1. Immediately publish regulations requiring railroads to provide train line ups that are accurate to within ten (10) minutes of anticipated operation time of that train. As with all fatigue mitigation elements, accurate information is key to optimizing rest opportunities. If an employee cannot reasonably predict when they are going on duty, there is no way they can obtain sufficient restorative sleep prior to reporting on duty.

2. Establish post accident investigatory procedures designed to determine the root cause of train accidents.

CERTIFICATE OF SERVICE

I certify that on May 26, 2017 I have electronically served upon Mr. James Southworth [redacted], Investigator in Charge, National Transportation Safety Board, a complete and accurate copy of these proposed findings regarding the June 28, 2016, head-on collision, derailment, and subsequent fire of BNSF intermodal trains S-LACLPC1-26K and Q-CHISBD-6-27L in Panhandle, Texas (NTSB Docket No. DCA-16-FR-008). An electronic copy of same was also forwarded to the individuals listed below in this certificate of service, as required by 49 CFR § 845.27 (Proposed Findings).

National Transportation Safety Board
c/o Mr. James Southworth
Investigator in Charge, DCA16FR008
[redacted]

Mr. Ryan Ringelman
General Director System Safety, BNSF
[redacted]

Kamron Saunders
State Legislative Director
[redacted]

Federal Railroad Administration
Stephen O. Dupont
Region 5 – Operating Practices Specialist
[redacted]

Sincerely yours,

[redacted]

Stephen J. Bruno
Brotherhood of Locomotive Engineers & Trainmen
National Secretary Treasurer
National Chairman, Safety Task Force
[redacted]

ATTACHMENT A

Signal Aspects and Indications—April 1, 2015 (Updated 9/1/15)

BNSF Railway — SIGNAL ASPECTS AND INDICATIONS

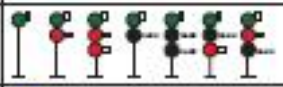
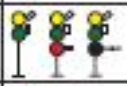
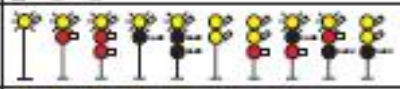
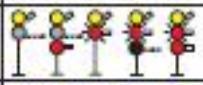
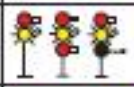
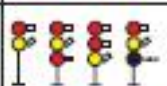
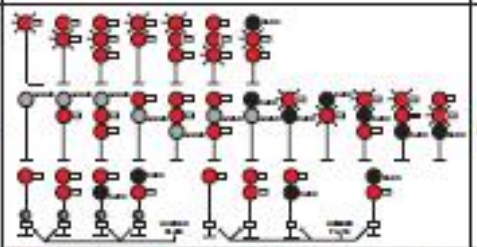
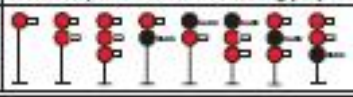
All signals are subject to modification indicated under individual subdivision special instructions.

DISTANT SIGNALS

Aspects shown in Rules 9.1.3 through 9.1.8 may be displayed with a "D" sign on the signal mast to identify the signal as a distant signal. When a "D" sign is displayed, if train is delayed per Rule 9.9 and Rule 9.9.1 between a distant signal and the next signal, proceed prepared to stop short of the next signal. Absolute signals at automatic switches, outside of block system limits, convey main track distant signal information for the other end of the siding.

BLOCK AND INTERLOCKING SIGNALS

Aspects shown in Rules 9.1.3 through 9.1.8 and 9.1.13 may be displayed on signals with or without a number plate on signal mast.

Rule	Aspects of Color Light and Semaphore Signals	Cab Signal Aspects	Name	Indication
9.1.3			CLEAR	Proceed.
9.1.4			APPROACH LIMITED	Proceed prepared to pass next signal not exceeding 60 MPH and be prepared to enter diverging route at prescribed speed.
9.1.5			ADVANCE APPROACH	Proceed prepared to pass next signal not exceeding 50 MPH and be prepared to enter diverging route at prescribed speed.
9.1.6			APPROACH MEDIUM	Proceed prepared to pass next signal not exceeding 40 MPH and be prepared to enter diverging route at prescribed speed.
9.1.7			APPROACH RESTRICTING	Proceed prepared to pass next signal at restricted speed.
9.1.8			APPROACH	Proceed prepared to stop at next signal. Trains exceeding 30 MPH immediately reduce to that speed. (Note: *Speed is 40 MPH for Amtrak and Commuter trains).*
9.1.9			DIVERGING CLEAR	Proceed on diverging route not exceeding prescribed speed through turnout.
9.1.10			DIVERGING APPROACH DIVERGING	Proceed on diverging route not exceeding prescribed speed through turnout prepared to advance on diverging route at the next signal not exceeding prescribed speed through turnout.
9.1.11			DIVERGING APPROACH MEDIUM	Proceed on diverging route not exceeding prescribed speed through turnout prepared to pass next signal not exceeding 35 MPH.
9.1.12			DIVERGING APPROACH	Proceed on diverging route not exceeding prescribed speed through turnout; approach next signal prepared to stop. Trains exceeding 30 MPH immediately reduce to that speed. (Note: *Speed is 40 MPH for Amtrak and Commuter trains.*)
9.1.13			RESTRICTING	Proceed at restricted speed.
9.1.14	Not used (Reserved for PTC tabling purposes only)			
9.1.15			STOP	Stop.

ATTACHMENT B

BNSF Railway Safety Vision

We believe every accident or injury is preventable. Our vision is that BNSF Railway will operate free of accidents and injuries. BNSF Railway will achieve this vision through:

A culture that makes safety our highest priority and provides continuous self-examination as to the effectiveness of our safety process and performance...

A work environment, including the resources and tools, that is safe and accident-free where all known hazards will be eliminated or safe-guarded...

Work practices and training for all employees that make safety essential to the tasks we perform...

An empowered work force, including all employees, that takes responsibility for personal safety, the safety of fellow employees, and the communities in which we serve.

This version contains the following updated, deleted or added pages:

January 26, 2016: 5, 16.
February 23, 2016: 19.
April 12, 2016: 8.
April 26, 2016: 21.
May 10, 2016: 23, 25, 26.
June 7, 2016: Title page, 9, 10, 11, 12, 17, 22, 28, 29.

BNSF RAILWAY

Kansas Division

Timetable No. 1

In Effect at 0800
Central Continental Time
January 6, 2016
(Including updates through
June 7, 2016)

Division General Manager
Matthew C. Garland
Kansas City, Kansas
[redacted] *Telephone #*

General Director Transportation
Steve M. Thompson
Kansas City, Kansas
[redacted] *Telephone #*

TOC Home

WESTWARD ↓	Length of Siding (Feet)	Station Nos.	Mile Post	Panhandle Subdivision MAIN LINE STATIONS	Rule 4.3	Type of Oper.	Line Segment	Miles to Next Stn.	↑EASTWARD
				Adjoining Sub: Emporia					
		54600	238.0	WELLINGTON Adj. RR: BNS, MP 238.0	BCJP	CTC 2 MT	7100	0.5	
			238.5	CP 2385	TX			5.0	
		54596	243.5	ROLAND	X(2)			8.3	
			251.8	HERTOG	X(2)			2.3	
	8,450	54594	254.1	MILAN				10.1	
		54592	264.2	ARGONIA	X(2)			2.3	
	8,903	54590	266.5	DANVILLE				4.8	
		54500	271.3	HARPER	X(2)			12.0	
		54490	283.3	EULA	X(2)			2.5	
	7,700	54200	285.8	ATTICA Adj. RR: VBR, MP 285.8	J			5.9	
			291.7	EAST CRISFIELD				0.5	
	10,500	54180	292.2	CRISFIELD				1.8	
			294.0	WEST CRISFIELD	X(2)			8.8	
			302.8	BARBER	X(2)			12.0	
		54084	314.8	LODER	X(2)			4.7	
	11,400	54075	319.5	BRINK				3.2	
			322.8	ALVA		CTC		2.7	
			325.5	EAST NOEL				4.7	
	10,966	54064	330.2	NOEL	X(2)	CTC 2 MT		5.2	
			335.4	EAST AWARD Adj. Sub: Award, Bpr Div MP 335.4	J			0.5	
		54060	335.9	AWARD Adj. Sub: Award, Bpr Div MP 336.0	J			0.5	
			336.4	WEST AWARD	X(2)			5.8	
			342.2	EAST WAYNOKA	X(2)			3.0	
		54000	345.2	WAYNOKA	BP			6.0	
		53950	351.2	HEMAN	X(2)			5.8	
		53945	356.6	BELVA	X(2)			12.1	
		53925	368.9	CURTIS	X(2)			10.6	
		53900	379.7	WOODWARD	X(2)			6.8	
	7,190	53850	386.3	GERLACH				4.5	
		53835	390.8	TANGIER	X(2)			7.5	
	7,785	53825	398.3	FARGO				3.2	
			401.5	OLETA	X(2)			5.2	
	7,883	53815	406.7	GAGE		CTC 2 MT		3.8	
		53800	410.5	SHATTUCK	TX(2)			7.3	
		53765	417.8	GOODNIN	X(2)			10.5	
		53760	428.3	CP 4283	X(2)			10.1	
		53755	438.4	COBURN	X(2)			5.7	
	10,910	53750	444.1	GLAZIER				2.8	
			446.7	CLEAR CREEK	X(2)			11.9	
		53740	458.6	CANADIAN	X(2)			4.9	
	11,017	53735	463.5	MENDOTA				6.2	
		53730	469.7	LORA	X(2)			7.2	
	11,723	53725	476.9	MIAMI				4.5	
		53720	481.4	CODMAN	X(2)			12.6	
			494.0	CP 4940	X(2)			3.3	
			497.3	CP 4973	X			1.4	
	8,470	53700	498.7	PAMPA	BPT			2.1	

WESTWARD ↓	Length of Siding (Feet)	Station Nos.	Mile Post	Panhandle Subdivision MAIN LINE STATIONS	Rule 4.3	Type of Oper.	Line Segment	Miles to Next Stn.	↑EASTWARD
			500.8	WEST PAMPA	X(2)	CTC 2 MT	7100	4.7	
		53646	505.5	KINGS MILL				4.8	
			510.3	CP 5103	X(2)			12.9	
			523.2	CP 5232	X(2)			2.8	
	13,580	53631	526.0	PANHANDLE Adj. RR: PWR, MP 526.1	JT			5.4	
			531.4	CP 5314	X(2)			6.8	
			538.2	ROBERTS	X(2)			12.3	
		53501	550.5	EASTERN Adj. Sub: Boise City, Pur Div	JTX			212.5	
				Adjoining Sub: Hereford					

Radio Call-In		
Radio Channel 084 in service Wellington Yard - 21(X) Sand Creek Trainmaster X=6		
Radio Channel 072 in service Wellington to Heman		
Wellington - 21(X) Sand Creek Trainmaster X=6	Harper - 22(X)	Attica - 23(X)
Alva - 24(X)	Waynoka - 14(X)	
Radio Channel 036 in service Heman to Roberts		
Alva - 24(X)	Curtis - 25(X)	Tangier - 31(X)
Shattuck - 33(X)	Canadian - 34(X)	Miami - 35(X)
White Deer M-F, 0630-1430: Controlling DS - 14(X) Adjacent DS - 41(X) All other times DS - 41(X)	Amarillo - 13(X) Boise City Dispatcher - 43(0)	
Radio Channel 084 in service Pampa Yard		
Radio Channel 026 in service Roberts to Eastern		
St Francis - 42(X)	Amarillo - 43(X)	
Emergency - Call 911		
Dispatcher X=0, Mechanical Desk X=2, Customer Support X=3, Railroad Police X=4, Detector Desk X=5, PTC Desk X=9		

Mobile PBX Access			
To Connect: Set channel Tx/Rx, Press access code, wait for dial tone, Press 8, dial 593-7670 for VTR. **To Disconnect:** Press #			
	Mobile		Access
	Tx	Rx	
Wellington	Ch 092	Ch 048	*
Kiowa	Ch 090	Ch 015	*
Waynoka	Ch 029	Ch 068	*
Tangier	Ch 095	Ch 009	*
Higgins	Ch 092	Ch 010	*
Miami	Ch 079	Ch 021	*
Pampa	Ch 090	Ch 015	*
Amarillo	Ch 092	Ch 010	*

Dispatcher Information

Wellington to Heman - 817-867-7005, Fax 913-551-2405

Monday-Friday, 0630-1430
Heman to West Pampa - 817-867-7006, Fax 913-551-2406
West Pampa to Eastern - 817-867-7101, Fax 913-551-2403

Monday-Friday 1430-0630 and all times weekends
Heman to Roberts - 817-867-7006, Fax 913-551-2406
Roberts to Eastern - 817-867-7028, Fax 913-551-2428

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1. Speed Regulations

See Item 1 of the System Special Instructions for additional speed restrictions.

1(A). Speed—Maximum

Main Track	Mph Under 100 TOB	Mph 100 TOB & Over
MP 238.0 to MP 560.5	55*	55*

* Unless otherwise restricted, the maximum speed for freight trains is 70 MPH provided:

1. Train does not contain empty car(s). Refer to Item 1(C) of the System Special Instructions for determining speed for multiplatform, intermodal equipment.
2. Train does not exceed 8,500 feet. Exceptions:
   a. Trains operating with distributed power equipment with remote DP automatic brake valve cut in may operate at 70 MPH up to 10,000 feet in length.
   b. Trains operating with two distributed power remote consists and both DP remote automatic brake valve(s) cut in may operate at 70 MPH up to 12,000 feet in length.
3. Train does not average more than 80 TOB. Exceptions:
   a. Trains consisting entirely of intermodal equipment (all equipment listed under BNSF Timetable, System Special Instruction 1C), including equipment designed to carry automobiles/trucks (auto racks), must not average more than 90 tons per operative brake.
   b. Trains consisting entirely of double stack and spine car equipment (car kind codes beginning QU, QK, QV, QW, QT, QX, QY, QM, QC, QO, Q5, QE) must not average more than 105 TOB.

   In addition, the intermodal trains described above may also handle as many as 15 refrigerated box cars identified as "Super Reefers" (BNSF 793110 thru BNSF 794112) provided train does not exceed 90 TOB.
4. Engineer can control speed to 70 MPH without use of air brakes.

(If unable to control speed to 70 MPH on long descending grades, two additional attempts are allowed to control speed with dynamic brake at slower speeds before speed must be reduced to 55 MPH while negotiating descending grade.)

See ABTH 103.2.1 Dynamic Brake Limitations, regarding when 32 axles of dynamic brakes may be used on lead consist.

1(B). Speed—Permanent Restrictions

	Mph
MP 238.0 to MP 239.7	60
MP 273.0 to MP 274.8, MT1	60
MP 323.5 to MP 328.0	55
MP 343.6 to MP 344.0	60
MP 379.0 to MP 379.3, MT2	65
MP 382.9 to MP 384.1	50
MP 385.4 to MP 389.9	50
MP 445.7 to MP 450.1	65
MP 450.7 to MP 451.2	60
MP 464.8 to MP 465.1, MT2	60
MP 476.3 to MP 477.8, MT2	60
MP 477.8 to MP 480.9, MT2	65

Key Trains

Maximum speed within the following municipal area limits unless otherwise restricted:

MP 543.0 to MP 560.5	35

1(C). Speed—Sidings and Main Track Switches and Turnouts

Trains and engines must not exceed 10 MPH through turnouts unless otherwise indicated. Trains and engines using sidings must not exceed siding turnout speed unless otherwise indicated.

	Mph Under 100 TOB	Mph 100 TOB & Over
MP 238.5, CP 2385, crossover	30	30
MP 243.5, Roland, crossovers	50	50
MP 251.8, Hertog, crossovers	50	50
MP 254.1, Milan, siding turnouts	40	40
MP 264.2, Argonia, crossovers	50	50
MP 268.5, Danville, siding turnouts	40	40
MP 271.3, Harper, crossovers	50	50
MP 283.3, Eula, crossovers	50	50
MP 286.8, Attica, siding turnouts	40	40
MP 292.2, Crisfield, siding turnouts	40	40
MP 294.0, West Crisfield, crossovers	50	50
MP 302.8, Barber, crossovers	50	50
MP 314.8, Loder, crossovers	50	50
MP 319.5, Brink, siding turnouts	40	40
MP 322.8, Alva, turnout	50	50
MP 325.5, East Noel, turnout	50	50
MP 330.2, Noel, crossovers	50	50
MP 335.5, East Avard, Avard sub turnout	15	15
MP 336.9, Avard, Avard Sub turnout	20	20
MP 336.5, West Avard, crossovers	50	50
MP 342.2, East Waynoka, crossovers	50	50
MP 351.2, Hernan, crossovers	50	50
MP 356.8, Selva, crossovers	50	50
MP 368.9, Curtis, crossovers	50	50
MP 379.7, Woodward, crossovers	50	50
MP 386.3, Gerlach, siding turnouts	40	40
MP 390.8, Tangier, crossovers	50	50
MP 398.3, Fargo, siding turnouts	40	40
MP 401.5, Oleta, crossovers	50	50
MP 406.7, Gage, siding turnouts	40	40
MP 410.5, Shattuck, crossovers	50	50
MP 417.8, Goodwin, crossovers	50	50
MP 428.3, CP 4283, crossovers	50	50
MP 438.4, Coburn, crossovers	50	50
MP 444.1, Glazier, siding turnouts	40	40
MP 446.7, Clear Creek, crossovers	50	50
MP 458.6, Canadian, crossovers	50	50
MP 463.5, Mendota, siding turnouts	40	40
MP 469.7, Lora, crossovers	50	50
MP 476.9, Miami, siding turnouts	40	40
MP 481.4, Codman, crossovers	50	50
MP 494.0, CP 4940, crossovers	50	50
MP 497.3, CP 4973, crossover	50	50
MP 498.7, Pampa, siding turnouts	30	30
MP 500.8, West Pampa, crossovers	40	40
MP 510.3, CP 5103, crossovers	50	50
MP 523.2, CP 5232, crossovers	50	50
MP 526.0, Panhandle, siding turnouts	40	40
MP 531.4, CP 5314, crossovers	50	50
MP 538.2, Roberts, crossovers	50	50
MP 560.6, Eastern, turnout to east leg of the wye	20	20
MP 560.5, Eastern, crossover	30	30
MP 560.5, Eastern, crossover, WWD, HER	20	20

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1(D). **Speed—Other**

Trains and engines must not exceed 10 MPH through turnouts unless otherwise indicated. Trains and engines must not exceed 10 MPH on other than main track (GCOR 6.28) unless otherwise indicated.

2. **Bridge and Equipment Weight Restrictions**

Maximum Gross Weight of Car

Wellington to Eastern ..... 143 ton, Restriction A

Location	Track Name	Track No.
Six-axle locomotives are not permitted on:		
Alva		
Celaness	Kinga Mill	6830
TSTC Tracks		1412, 1427
Only one four-axle locomotive is permitted on:		
Alva	Old Rock Island Yard	

3. **Type of Operation**

Main Track

MP 238.0 to MP 322.8	CTC, 2 MT
MP 322.8 to MP 325.5	CTC
MP 325.5 to MP 550.5	CTC, 2 MT

4. **Subdivision Specific Rules Information**

Safety Overlay Systems in Effect

- Hy-Rail Limits Compliance System (HLCS)

GCOR/MWOR 1.14—Yard Limits is in effect between MP 0.0 and MP 3.0 on the BNO at Wellington and between MP 0.0 and MP 7.0 on the PNR at Panhandle. Within these limits track warrants and track bulletins are not required for BNSF trains. Within these limits BNSF trains must not exceed 10 MPH.

GCOR/MWOR 6.19—When required flagging distance is 2 miles.

5. **Trackside Warning Devices (TWD)**

See System Special Instructions for additional Trackside Warning Device (TWD) information

Mile Post	Device	Recall Code	Notes
Type A. Locations Protecting Bridges, Tunnels or Other Structures			
446.9		7	WWD
458.8		8	EWD
Type B. Locations			
243.3		8	Exception reporting
249.9	DED		Exception reporting
254.1	DED		Exception reporting
258.9	DED		Exception reporting
264.4		8	Exception reporting
269.4	DED		Exception reporting
273.7	DED		Exception reporting
278.9	DED		Exception reporting
283.1		8	Exception reporting
287.4	DED		Exception reporting
294.3	DED		Exception reporting
298.7	DED		Exception reporting
302.9		8	Exception reporting
308.4	DED		Exception reporting
312.5	DED		Exception reporting
323.0		8	Exception reporting
333.2	DED		Exception reporting
339.3		8	Exception reporting
344.6	DED		Exception Reporting (Broadcasts on channels 044 and 072)
350.9	DED		Exception reporting
353.9	DED		Exception reporting
359.8		8	Exception reporting
364.4 MT2	DED		Exception reporting
367.1	DED		Exception reporting
372.1	DED		Exception reporting
377.6		8	Exception reporting
381.7	DED		Exception reporting
385.8	DED		Exception reporting
389.1	DED		Exception reporting
392.6	DED		Exception reporting
396.1		8	Exception reporting
403.6	DED		Exception reporting
407.4	DED		Exception reporting
412.7	DED		Exception reporting
416.7		8	Exception reporting
421.6	DED	8	Exception reporting
426.8 MT2	DED		Exception reporting
430.9 MT2	DED		Exception reporting
433.2		8	Exception reporting
438.2	DED		Exception reporting
442.5	DED		Exception reporting
446.9		7	EWD
451.5	DED		Exception reporting
456.2	DED		Exception reporting
458.8		8	WWD
464.8	DED		Exception reporting
468.7	DED		Exception reporting
473.6	DED		Exception reporting
479.7		8	Exception reporting
483.5	DED		Exception reporting
487.6	DED		Exception reporting
503.0		8	Exception reporting
522.9		8	Exception reporting
548.0		8	Exception reporting
Other Devices			
273.0	High Water		EWD signals 2732 and 2734 WWD controlled signals Harper
376.4, 376.8	High Water		EWD signal 3772 and 3774 WWD signals 3741 and 3743
398.0	High Water		EWD controlled signal EE siding Fargo and signal 3982 WWD signals 3981 and 3983
403.5	High Water		EWD signals 4032 and 4034 WWD controlled signal Olata
404.5, 405.0	High Water		EWD controlled signal EE siding Gage and signal 4052 WWD signals 4031 and 4033
409.6	High Water		EWD controlled signals Shattuck WWD signals 4081 and 4083

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Mile Post	Device	Recall Code	Notes
461.2, 462.3	High Water		EWD controlled signals EE Siding Mendota and signal 4622 WWD signals 4601 and 4603
465.0	High Water		EWD signals 4662 and 4664 WWD controlled signals WE Siding Mendota and signal 4641
468.7	High Water		EWD controlled signals Lora WWD signals 4661 and 4663
470.5	High Water		EWD signals 4712 and 4714 WWD controlled signals Lora
472.7	High Water		EWD signals 4732 and 4734 WWD signals 4711 and 4713
481.0	High Water		EWD controlled signal Codman WWD signals 4791 and 4793
482.0, 483.2	High Water		EWD signals 4832 and 4834 WWD controlled signal Codman
486.3	High Water		EWD signals 4872 and 4874 WWD signals 4851 and 4853
488.1	High Water		EWD signals 4892 and 4894 WWD signals 4871 and 4873

6. **FRA Excepted Track**—None

7. **Special Conditions**

East Noel—The hand operated switch within the control point at East Noel providing access to the Alva Dead Track is equipped with an electric lock. Permission must be obtained from the control operator before operating the release on the electric lock. After the electric lock is released, wait for the electric lock to run time (8 minutes), then hand operate the switch. In addition to receiving permission to operate the electric lock switch, authority must be obtained to occupy the control point.

Between Waynoka and Heman—The distance between MP 350.0 and MP 351.0 is 1,168 feet.

Missing Milepost(s)
MP 373 is missing. The distance between MP 372 and MP 374 is 2,440 feet.

Remote Control Area
Amarillo—MP 538.5 to MP 560.5

Bad Order Setout Tracks—Tracks at the following locations are designated as a bad order setout tracks. Signs indicate where car(s) should be spotted:

Wellington, MT1, MP 238.5	103	Gage, MT1	3138 W
Mayfield COOP, MT1, MP 249.5	0705 W	Shattuck, MT1, MP 414.3	3140 W
Argonia, MT1, MP 259.0	2008 E	Goodwin, MT1, MP 420.5	3160 W
Argonia, MT2, MP 259.0	2009 E	Goodwin, MT2, MP 420.5	3161
Danville, MT2, MP 268.3	2012 E	Higgins, MT1, MP 428.5	3165 E
Harper, MT1, MP 274.0	2015	Higgins, MT2, MP 428.5	3164
Eula, MT1, MP 280.1	2067 E	Coburn, MT1, MP 436.1	3166 W
Eula, MT2, MP 280.1	2068 E	Coburn, MT2, MP 436.1	3167 W
Attica, MT2, MP 286.6	2031 E	Glazier, MT1, MP 443.6	3170
Hazelton, MT1, MP 299.6	2045	Glazier, MT2, MP 443.6	3171
Hazelton, MT2, MP 299.6	2044 E	Clear Creek, MT1, MP 452.2	3215 W
Kiowa, MP 306.3	2049	Clear Creek, MT2, MP 452.2	3216 W
Kiowa, MP 307.8	2059	Canadian, MT1, MP 456.9	3212
Cepron, MP 316.4	2103 E	Canadian, MT2, MP 456.3	3214 E
Brink, MP 319.5	2104	Mendota, MT1, MP 462.9	3224 W
Alva, MP 325.6	2106 W	Mendota, MT2, MP 462.9	3225
Noel, MP 329.2	2138	Lora, MT2, MP 470.4	3218 W
Averd, MT2, MP 335.8	141 W	Miami, MT1, MP 476.7	3221
Waynoka, MP 342.4	3011	Miami, MT2, MP 476.7	3220
Waynoka, MT2 MP 345.2	3017	Codman, MT1, MP 484.6	3226
Waynoka, MT1, MP 345.5	3018 (Both)	Codman, MT2, MP 484.6	3227
Heman, MT1, MP 352.5	3030 (Both)	Hoover, MT1, MP 491.4	3229
Heman, MT2, MP 352.5	3031 (Both)	Hoover, MT2, MP 491.4	3230 E
Belva, MT1, MP 366.4	3034 W	Pampa, MT2, MP 500.0	6903 (Both)
Curtis, MT1, MP 366.1	3038 W	Kings Mill, MT1, MP 506	6903 W
Curtis, MT2, MP 366.1	3039 W	Kings Mill, MT2, MP 506.5	6901
Woodward, MT2, MP 382.4	3115	White Deer, MT1, MP 512.6	3234 E
Tangier, MT1, MP 392.6	3132 E	White Deer, MT2, MP 512.6	3231
Tangier, MT2, MP 392.6	3133	Cuyler, MT1, MP 519	3246 E
Fargo, MP 396.1	3136 E	Cuyler, MT2, MP 519	3245 E
Fargo, MT1, MP 399.6	3134 W	Panhandle, MT2, MP 526	3256

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Close/No Clearance Locations

Location	Track Name	Track No.	Obstruction
Mayfield	Mayfield Co-op	0705	Structure
Danville	Danville Co-op	2012	Structure
Harper	Team Track	2026	Dock
	Anthony Farmer COOP	2027	Building
		2028	Elevator
		2029	Elevator fence
Attica	Anthony Farmers COOP	2031	Structure
Hazelton	OK COOP Grain	2045	Structure
Kiowa	Elevator Trk	2050	Structure
	Stock Extension	2059	Fertilizer, hose reel
	House Trk	2063	Elevator
Capron	Capron Elevator	2102	Structure
	Elevator Track	2103	Elevator
Alva Yard	Alva Lead	2109	Dock
	Farmers COOP	2116	Elevator
	Elevator	2117	Elevator
	Liquid Feed	2118	Elevator
	North Mill Track	2127	Elevator
	Elevator	2131	Elevator
Noel	House Trk	2138	Structure
Avard	Elevator Track	2141	Elevator
Woodward	Anchor Drilling	3115	Structure
	Cox Spur	3112	Structure
Fargo	Elevator Track	3136	Elevator
Higgins	Great White	3164	Structure
Canadian	Team Trk	3213	Structure
Hoover	Golden Spread COOP	3229	Structure
Pampa	TOFC Trk	6849	Structure
	Elevator Team Trk	6869	Structure
	Cabot	6974	Structure
Kings Mill	Elevator Trk	6904	Structure
White Deer	S Siding	3231	Structure
	N Elevator	3235	Structure
	Attebury Grain	3238	Structure
Panhandle	Robinson Grain	3254 - 3256	Structure
	Hughes	3259	Structure

Close Track Centers

Location	Track Name	Track Nos.
Wellington	Yard	102-103, 107-111
Waynoka	Yard	3005-3008
Gerlach	Yard	3119-3129
Canadian	Yard	3212-3213

Test Miles

Westward	Eastward
MP 257.0	MP 530.0
MP 395.0	MP 396.0
MP 529.0	MP 258.0

SSI—Switch Control/Monitoring Systems

- Turnouts Equipped with Two Switch Machines (Moveable Point Frogs / Swing Nose Frogs / Derail)
  - MP 322.8 Alva
  - MP 325.5 E Noel
  - MP 330.2 Noel
  - MP 336.5 W Avard
  - MP 505.5 Kings Mills
  - MP 507.0 CP 5070
  - MP 526.1 CP 5261
  - MP 528.9 CP 5289
- ICS in effect
  - MP 330.2 Noel
  - MP 336.5 W Avard
  - MP 500.8 West Pampa

Flash Flood Critical Areas

MP 518.2

8. Line Segments

Segment No.	Limits	Mile Posts
Road Line Segments		
7100	Wellington to Eastern	
Yard Line Segments		
7152	Wellington Yard	

9. Other Location Information

Station No.	Name	Mile Post	Capacity Feet	Switch Opens
	Mayfield Cooperative Elevator 0705	249.2	1,215	West
	Harper Yard	274.0	Yard	Both
54120	Hazelton - 2045	299.6	2,018	Both
54080	Kiowa Yard	307.7	Yard	Both
54070	Capron - 2102	316.4	5,200	East
53915	Alva Yard	324.7	Yard	East
	Mooreland - 3044	371.3	Yard	West
	Woodward Yard	382.0	Yard	Both
53800	Shattuck Yard	414.4	Yard	Both
53760	Higgins Elev - 3164 - MT2	428.5	2,275	Both
53740	Canadian Yard	465.5	Yard	Both
	Hoover Elevator - 3229 - MT1	481.4	1,179	Both
	Cabot Carbon Pampa Plant - West Lead 6969 - MT1	502.6	2,250	West
	Cabot Carbon Pampa Plant - East Lead 6970 - MT1	502.6	2,250	East
	Eagle Rock - MT1	503.6	2,000	West
	National Oil Well - 6980 - MT1	503.6	1,512	West
	Celanese Corp. - 6905 - MT2	504.3	9,800	Both
	Celanese Corp. Coal Lead - 6920 - MT2	505.6	2.4 miles	West
	Attebury Grain Industry - 6904	507.1	8,122	East
53650	White Deer - 3232	512.8	Yard	Both
	Cuyler Elevator - 3245 - MT2	519.0	1,200	East
53510	St. Francis - 1501 - MT1	542.1	Yard	Both
	TSTC - 1425 - MT2	543.4	Yard	East
	Folsom Rail - Park Siding - 1415 - MT1	547.5	4,400	Both

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10. Grade Chart