



IronWood Technologies

Railroad Accident Reconstruction

Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - State of Minnesota

Report #	Date	Reporting Carrier	Block System	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
77	12/2/1996	BNSF		Remote			Searchlight Signal 808EE	University Ave., Minneapolis, MN	N
Human Error - Field Wiring Error, Inadequate Service Testing									
<p>Searchlight signal 808EE (eastbound signal on South Receiver Track) reported Flashing Red by eastbound train CN-368 on main track 1. Eastbound main track 1 searchlight signal 808EB displaying DIVERGING APPROACH MEDIUM (Red over Flashing Yellow). Lighting circuit for 808EE signal was in parallel with lighting circuit for 808EB causing 808EE signal to flash whenever 808EB signal displayed DIVERGING APPROACH MEDIUM. This aspect was added on 11-11-96 when CTC was installed on the St. Paul Subdivision. Wiring changes were made to the lighting circuit for 808EE signal eliminating this parallel circuit. Signal forces were notified at 0400 hrs, with wiring changes and testing completed at 0630 hrs.</p>									
119	9/14/1997	BNSF	CTC			CP Transfer	5 E Signal	Minneapolis, MN	N
Human Error - Signal Circuit Design Error, Inadequate Service-Testing									
<p>At approximately 1945 on 09-14-97 a CP Transfer crew reported a Red over F/Y 5E signal at University Ave Intr. Thru a 12 MPH turnout (#10 switch) into Shorem Yard. Upon investigation the maintainer found 5E to be Red over F/Red until the 1E signal coming out of Shorem Yard was cleared. Further investigation revealed that 5E would come up to Red over Green with no train on the approach to 1E. Cause was found to be that the #10 switch correspondence was not programmed into the VHLC control system for the B head Green, F/Y, and Yellow aspects. Green and Yellow aspects were disabled until corrective action was completed on 09-16-1997. Corrective action entailed adding external correspondence relays for the #10 and #1 switches, so that the 5E signal displays no better than Red over F/Red with the #10 switch in the reverse position.</p>									
122	10/1/1997	BNSF	CTC				3E Signal - Searchlight Mech	Mississippi St. Control Point, St. Paul, MN	N
Vandalism - Signal Damaged, Caused Unintended Signal Aspect									
<p>On Oct 1, 1997 at 1643 CST, vandals shot out both signal heads on the eastbound controlled signal on the eastward track (Main 2) at Mississippi Street on the Minnesota Division, St. Paul Subdivision, causing 3E signal to display the aspect Dark/White Light. Both A and B head searchlight mechanisms were replaced and testing completed at 0300hrs CST Oct 2, 1997.</p>									

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			Cause						
			Narrative						
650	11/13/2000	CP	CTC			CP8500	OS Track Circuit	Minneapolis, MN	N
			Insufficient Information in Report to Assign Cause						
			See reverse side of this page [reverse side of page not photocopied by FRA].						
680	9/6/2001	CP	CTC			CP6055E	45L Sig.	Buffalo, MN	N
			Failed Equipment or Device - Interior Wiring						
			On 9/6/01 at 1933 hrs. train CP6055 East with Conductor and Engineer was moving thru Buffalo East Control Point, Conductor looked back at the westbound absolute signal and observed signal 45L displaying a Red over Yellow aspect. This signal should have been Red. Through investigation by Signal Supv and Signal Mtr, it was found to have the yellow light wire pinched under the nuts and washers of the red light wire in the jct. box of the color light head. The yellow wire was replaced and the balance of the other wires were inspected in all the signals at this control point. Signal 45L is a 4-position colorlight signal.						
			Corrective Action: Mtrs to inspect all stackable colorlight heads to assure proper spacing and placement of wires. Review incident with all Suprv. And with construction crews review the proper procedures and practices when doing wiring in close confined areas.						
299	11/15/2001	BNSF	CTC			L TWI8101 15	SA-1 Signal Mechanism	Minneapolis, MN MP 16.3, Control Point	
			Failed Equipment or Device - Relay						

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701	9/6/2002	CP	CTC			SOO 2032W	Insulated Joints	Brooten, MN	N
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Failed Equipment or Device - Insulated Joint(s)

About 1330 on September 6, 2002, Engineer [redacted] told the S&C Supervisor [redacted] at Glenwood that there may be a problem with the signal at MP 104.5 near the West House Track at Brooten, MN. Engineer [redacted] stated they stopped with a westbound wayfreight on September 1, 2002 about 1600 east of signal 104.5, cut off their train with 3 engines and two cars then proceeded west to the west house track switch. They reversed the switch and backed into the house track far enough to set out the cars and thought the signal 104.5 appeared to displayed a CLEAR aspect with the house track switch lined reverse.

S&C Supervisor [redacted] proceeded to the site and simulated the train move. He found by simulation when the west house track switch was open, signal 104.5 displayed a CLEAR aspect. Further investigation revealed the house track switch was wired per plan breaking the track circuit through the switch circuit controller with the polarity the same on both sides of the insulated joints with TJs around insulated joints for the warning devices on CSAH-18 (Central Ave.) and both insulated joints were shorted.

Method of train operation is freight with maximum speed of 60 MPH for expedited trains and all others 50 MPH in CTC territory on the Paynesville Sub.

Cause of failure was due to insulated joints shorted.

Corrective action taken: Temporarily switch was taken out of service with a shunt circuit wired in the circuit controller until insulated joints were changed out. All switches were inspected following this incident and any switches found to have two insulated joints breaking the track circuit through the switch circuit controller are being redesigned to have track leads transposed at all of these locations.

708	3/5/2003	CN	CTC			343	Signal 2WA-CL	IKE north - Ray, MN	N
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Phantom Signal - Due to Sun Angle

NB train 343 was in the siding preparing to proceed NB on a CLEAR signal indication. Temperature was -30degF bright sunny. Signal maintainer was on site working on switch trouble due to frost on switch contacts. At approx. 11:11 train crew reported to signalman that they observed an APPROACH aspect on the main line signal (2WA). At the time they had a CLEAR on signal 2WB.

Signal maintainer bagen tests and could not simulate or replicate. No defects were found. Signal supervisor downloaded recorder. Data showed signal 2WA never lined at the time signal 2WB was up. Signal system returned to service when all tests were complete.

Train crew later reported in written statement that the lens color of 2WA changed from Amber to Red when they were within 1-2 car lengths. Train crew also reports frost on the signal lenses.

Cause appears to be a phantom aspect due to angle of sun on signal lens with heavy frost. Frost was removed from signal.

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715	8/21/2003	CP	CTC			CP 8526	Sig. 1W	MP 385.9, Vermillion, MN	N
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Scenario Reenacted, Unable to Duplicate, No Defects Found

[Text of e-mail message from Timothy L. Lyon (S&C Supervisor, LaCrosse, WI), to himself on 8/25/2003]

On Thursday night at about 2302 I was contacted by Operations Control Center that a train had reported a signal displayed a DIVERGING CLEAR and that the signal should have been a DIVERGING APPROACH.

I immediately had the local maintainer go to the site and test the signal. Maintainer arrived on site and had the Dispatcher request the same line-up as had been requested for the train. Signal displayed a DIVERGING APPROACH. Site was ground tested with no exceptions found. Signal head and junction box were inspected with no defects found.

On Friday morning I contacted the Technician in the Soo Line building for a copy of the logs from the CTC system for the timeframe involved in the accident. Those logs are attached to this message.

On Friday morning, after talking to the Technician, I then drove to the site and was met by the Signal Maintainer. We proceeded to retest the signal again. The line-up was duplicated from the previous evening when the incident occurred. We had the Dispatcher duplicate the entire move, including the stack request. The signal, when lined displayed a DIVERGING APPROACH.

We then meggered the cable from the house to the signal with no exceptions found. We also did another ground test with no exceptions noted. We also inspected the signal head and junction box with no exceptions noted.

Signal lamp voltages are as follows: Green 9.0, Yellow 9.0, Lunar 8.6, Red 9.0. With signal 1W lined for DIVERGING APPROACH, voltages are: Red 8.2, Yellow 8.6.

With signal 1W lined through the crossover from Main Track to Track #2, aspect was a DIVERGING APPROACH in all tests. Incoming codes from East Hastings during the test remained a Code 1 & 2 during the entire test.

Outgoing codes were a Code 1 & 3. All codes are as prescribed by the print.

Control point to the west is East Hastings, all signals were displaying Red aspects as no signals had been lined at this location as shown in the attached logs.

Train that reported this incident was train # 297-20 (CP 8526).

No. of Reports Shown in this Listing: **9**