



# IronWood Technologies

Railroad Accident Reconstruction

## Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - 2001

| Report # | Date | Reporting Carrier | Block System | Interlocking System | Auto. Systems | Loco or Train No. | Device that Failed | Location | Collision or Derailment? |
|----------|------|-------------------|--------------|---------------------|---------------|-------------------|--------------------|----------|--------------------------|
|----------|------|-------------------|--------------|---------------------|---------------|-------------------|--------------------|----------|--------------------------|

|     |          |    |     |  |  |         |      |           |   |
|-----|----------|----|-----|--|--|---------|------|-----------|---|
| 317 | 1/3/2001 | UP | CTC |  |  | UP 9201 | None | Anita, CA | N |
|-----|----------|----|-----|--|--|---------|------|-----------|---|

On January 3, 2001 at 11:30 PST, at Anita, CA on the Valley Subdivision at MP 193.95, southbound QUERV 02 on the main track reported the southbound signal at the north end of Anita displaying Flashing Yellow, and the southbound signal at the south end of Anita displayed Red.

An investigation revealed the control wires for the H circuit at the south end of Anita were reversed.

The signal system was restored to proper operation, and all applicable tests were performed.

|     |          |    |     |  |  |       |                |               |   |
|-----|----------|----|-----|--|--|-------|----------------|---------------|---|
| 310 | 1/4/2001 | NS | CTC |  |  | P42P3 | Phantom Signal | Thicketty, NC | N |
|-----|----------|----|-----|--|--|-------|----------------|---------------|---|

At approximately 5:04 p.m. on 1/4/01, train P42P3 running northbound reported a signal problem with the 4354 northbound intermediate signal at MP 435.4. Train P42P3 was northbound on track two returning to a cut of 15 cars it had left on track two north of the 4354 intermediate signal. Upon approaching the 4354 signal northbound, the crew first observed a RESTRICTING Red over Red aspect. As they got closer to the signal, it appeared to them as an APPROACH, Yellow over Red aspect. The engineer called the dispatcher and reported that he thought there were signal problems at the location. The dispatcher called signal personnel to investigate. Investigation revealed no exceptions with signal circuits, grounds or relay operation. However, it was determined that the sun was shining directly into the signals at the time of the incident and the situation would be reenacted at 5:00 p.m. on 1/5/01, as a phantom aspect was suspected.

Conditions were almost identical to the previous day during the reconstruction. The same crew and train P42P3 were used, with signal officers on board to observe the signals. At a distance the RESTRICTING aspect was visible on signal 4354. When the train got within 600' of the signal, an APPROACH aspect could be distinguished and the top head green lens appeared dimly lit on signal 4354.

It was observed that the signal was affected by the sun's glare, and the top head appeared to have all three units (green, yellow, and red) burning dim and of equal intensity. Such an aspect would have been interpreted as an improperly displayed signal, rather than an APPROACH. However, the possibility of an APPROACH aspect could not be discounted.

Adjustments were made to make the signal aspects easier to discern in the afternoon sun. This involved bulb voltage adjustments, sighting alignment and installing long signal hood covers.

| Report #  | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed | Location                          | Collision or Derailment? |
|---|-----------|-------------------|---------------------------|--------------|---------------|-------------------|--------------------|-----------------------------------|--------------------------|
| 655   | 1/12/2001 | IHB               |                           | Manual       |               | CSX Train X747-11 | Signal 7           | Hohman Tower, Hammond, IN         | N                        |
| <p>Light power from CSX train X747-11 was traveling from IHB Gibson Yard to CSX Barr Yard. Train was stopped at westbound home signal no. 7 at Hohman Tower, Hammond, IN. Operator made the line up for IHB train BA3, also westbound, to proceed west from Track 4 to Track 3 and pulled signal lever 9 to clear signal for IHB train BA3's movement from Track 4 to Track 3.</p> <p>CSX crew on train X747-11 claims that signal 7 cleared to RESTRICTING aspect (R/Y) for Track 3. Upon receiving this signal, train X747-11 proceeded west and ran through the reverse side of the west end of crossover 15 which was lined against their movement. During interviews following this incident, the CSX crew repeatedly claimed that they had a "bottom yellow" on signal 7. IHB crew on train BA3 claimed they could see the RESTRICTING signal (R/Y) but could not determine which track it was for. As information, both signal 7 and signal 9 are located above the Engineer's rail on a signal bridge.</p> <p>Signal Department was notified and responded to the scene to investigate. Signal personnel found that the control lever for crossover 15 was locked in the reverse position and the control lever for signal 9 was in the CLEAR position as described by the Tower Operator. The control lever for signal 7 was locked in the STOP position.</p> <p>After the damaged rods in the switch machine were replaced, signal personnel attempted to re-create the situation as described by the crew of CSX train X747-11. In each instance when the control lever for signal 9 was pulled with crossover 15 reversed, signal 9 cleared to RESTRICTING (R/Y) as intended and signal 7 remained at STOP.</p> <p>After failing to re-create the alleged false proceed, signal personnel then performed all appropriate tests on the signals, switches and cables with no problems found and no exceptions taken to any test results.</p> <p>The train crew waived formal investigation and accepted discipline.</p> |           |                   |                           |              |               |                   |                    |                                   |                          |
| 318   | 1/18/2001 | UP                |                           |              |               | UP 743            | None               | Houston, TX                       | N                        |
| <p>On January 18, 2001 at 8:40 CST, in Houston, TX, on the Terminal Subdivision, westbound YEW50 18, on track NR2, reported the westbound 1-14-RD signal at LF395 was Green with the westbound 1-24-R signal at LR 360 displaying a Red.</p> <p>An investigation revealed that the mechanism polarity wires at the westbound 1-14-RD signal were reversed.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>  |           |                   |                           |              |               |                   |                    |                                   |                          |
| 300   | 1/25/2001 | CSXT              |                           |              |               | None              | Switch Repeater    | 318-2 EB Int. Signal, Maidens, VA | N                        |
| <p>EB Train V454-22 while running on Number 1 track observed the EB Intermediate signal on Number 2 Track displaying a RESTRICTED PROCEED signal which upgraded to APPROACH while the block ahead was occupied by the B010-25 working at Wood Yard Switch on Number 2 Track. The signal was immediately removed from service. Investigation revealed a wiring change error due to a switch's derail removal. The wiring error was a misapplication of relay tag identity and connecting the wiring to the wrong switch repeater relay thus eliminating a track circuit break in the switch repeater circuit. Wiring was corrected and full operational tests were made. Signal was restored to service.</p>   |           |                   |                           |              |               |                   |                    |                                   |                          |

| Report #   | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed | Location                        | Collision or Derailment? |
|--|-----------|-------------------|---------------------------|--------------|---------------|-------------------|--------------------|---------------------------------|--------------------------|
| <b>656</b>   | 1/26/2001 | DH                | CTC                       |              |               |                   | Signal 584.4       | MP 584.4, Afton, NY             | N                        |
| <p>The following incident was reported to B. Velasco from T. Otis. A southbound train #8859 (empty coal train) reported having a CLEAR signal at the south approach (signal 584.4) to CPF587, and then stated that the southbound home signal at CPF587 was at STOP and the switch was in the reverse position. They reported putting the train in emergency and stopping approximately one car length north of the southbound home signal.</p> <p>Several tests were made at that time to find a cause. No cause has been found and testing is ongoing at this time, by use of recording devices.</p>   |           |                   |                           |              |               |                   |                    |                                 |                          |
| <b>301</b>   | 2/6/2001  | CSXT              | CTC                       |              |               | Q453-06           | Phantom Aspect     | 10 Signal So. Wye, Waycross, GA | N                        |
| <p>16:35, 02-06-01, 10 Signal at Waycross south wye was over-run by Q453-06 to track J02 south bound. Train crew reported they had stopped and rechecked the 10 signal indication and agreed on the RESTRICTING indication and passed the signal. Upon arrival, signal personnel observed the sun shining directly into the 10 signal, with Q453 stopped occupying yard lead, 10 signal OS, 5 switch normal, and J02 track. The top red aspect was clearly visible. The middle aspect indicated a white reflection from left to right, approximately 1" in height, top and bottom part of lens was darker in appearance. The bottom red aspect indicated dull red to orange appearance. Signal personnel performed full operational checks and inspections with no exceptions noted. Signals returned to service at 21:00 on 02-06-01. A test with a locomotive, signal &amp; transportation personnel occurred on 02-07-01 at 16:30 to simulate the previous day's conditions. The test was conducted with bright sun shine conditions. While on a locomotive about 30 feet from 10 signal, observing personnel could not determine when the signal had changed from STOP to RESTRICTING with direct sun light into the face of the signal. Signal department immediately changed the lower red lens, screening and installing longer hoods. We are reporting this event but we do not consider this to be a false proceed.</p> |           |                   |                           |              |               |                   |                    |                                 |                          |
| <b>302</b>   | 2/19/2001 | CSXT              | CTC                       |              |               | Q297-19           | Design             | PA Tower, Fort Meade, MD        | N                        |
| <p>At about 2130 on 2-19-01 B702-19 was traveling WB on #1 Track crossing over to #2 Track at Savage. After B702 cleared Savage, Train Dispatcher requested #3 crossover Savage normal and #8 Signal WB on #2 Track behind B702 for a following train Q297-19. As Q297 approached the #2 WB signal at PA Tower the train crew reported an APPROACH MEDIUM signal with B702 ahead in the block west of Savage. This signal should have been an APPROACH signal into the RESTRICTED PROCEED following B702. Signals were immediately removed from service and Train Control personnel dispatched to the location for investigation. The investigation revealed a design error at Savage that allowed a Code 3 generated and sent to PA Tower when a RESTRICTED PROCEED signal was displayed at Savage. A corrected design was sent to the field and installed. Full operational checks were made and the signals were restored to normal service at 1500 on 2-21-01.</p>   |           |                   |                           |              |               |                   |                    |                                 |                          |
| <b>286</b>   | 2/24/2001 | BNSF              | CTC                       |              |               | P EPEKCK1 24A En  | None               | Camden, MO                      | N                        |
| <p>Train P EPEKCK1 24A, traveling west on main track 3 (Norfolk Southern track), observed a Red over Flashing Yellow on the 6L (Norfolk Southern signal) at CA Jct. Control Point, for a move from main 3 to main 1. The signal should have displayed Red over Yellow. This signal had been overlooked when plans were issued to change the Red over Flashing Yellow to Red over Yellow on this Subdivision to conform to current BNSF signal aspects. Temporary circuit changes were made to correct the condition until permanent circuit plans are issued. The Signal was tested and placed back in service.</p>  |           |                   |                           |              |               |                   |                    |                                 |                          |

| Report #  | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed                 | Location                      | Collision or Derailment? |
|---|-----------|-------------------|---------------------------|--------------|---------------|-------------------|------------------------------------|-------------------------------|--------------------------|
| 657   | 2/27/2001 | MRL               | CTC                       |              |               | MRL 406           | WP Circuit                         | Livingston, MT                | N                        |
| <p>On February 27, 2001, Signal Maintainer Mike Hardesty observed the 841 local crossing over from the east leg of the Y at Livingston to the yard when he observed the WP relay at Livingston Hump in the energized position. The WP relay should have been deenergized at this time since two of the 3 hand operated switches in this WP circuit were in the reverse position.</p> <p>Signal Department personnel immediately corrected the problem by making the appropriate circuit changes. Tests were performed to verify the signal system functioned as intended.</p> <p>Investigation by Signal Department personnel revealed that this problem occurred when signal crew 101961 cut over a new underground cable for the west leg of Y switch and thereby removed the WP circuit from the Yard Switch and east leg of Y switch. The Signal Foreman took full responsibility for this error and stated the error occurred because he did not know that all 3 switches were on the same WP circuit. The Signal Foreman was relieved of all Foreman responsibilities pending a fact-finding hearing.</p> <p>On March 9, 2001, a fact finding hearing was held to determine the facts involving this incident. In the fact finding hearing the Signal Foreman accepted full responsibility for this incident. The Foreman stated in the hearing that he thought this was a simple circuit change and did not see a need to consult with his Supervisor prior to performing the work. Although this was not intentional interference, this incident happened because the Signal Foreman interfered with vital circuits and did not make the appropriate tests to ensure the integrity of the signal system. Upon review of the official transcript, disciplinary action will be taken as deemed necessary.</p> |           |                   |                           |              |               |                   |                                    |                               |                          |
| 659   | 2/28/2001 | METX              | AB                        |              |               | Train 730 (MU)    | 22 HD Relay                        | Richton Park, Illinois        | N                        |
| 660   | 2/28/2001 | SDNR              |                           | Remote       |               |                   | Improper Wiring of 4WBFLHR Circuit | CP Ash, San Diego, California | N                        |
| <p>On February 28, 2001, while Amtrak train #573 was occupying track #3 with a properly displayed aspect on the 4WA signal (Flashing Yellow over Red), the engineer reported that 4WB signal on an adjacent track #4 was displaying a Dark over Flashing Red signal. This was an improperly displayed aspect on the 4WB signal. The aspect should have been Dark over a solid Red signal, with the top aspect lamp burned out.</p> <p>Upon investigation, it was determined that the 4WB signal on track #4 had a burned out lamp in the top aspect and an improperly wired flasher circuit in the bottom aspect. On February 28, 2001 the lamp was replaced on the top aspect of the 4WB signal. On March 2, 2001 a bulletin order was put into effect instructing all engineers to notify the dispatcher's office and receive permission by any Flashing Red aspects at CP Ash until permanent corrections could be made. On March 5, 2001, permanent corrections were made to wiring of the 4WBFLHR circuit. Tests were conducted and the 4WB signal displayed all the proper aspects and functioned as designed.</p>  |           |                   |                           |              |               |                   |                                    |                               |                          |
| 658   | 2/28/2001 | ST                |                           | Remote       |               | 305, 307, 301     | VHLC                               | CPF-266, Wells, Maine         | N                        |
| <p>POSE West - Lite Power (Engineman &amp; Conductor)<br/>EDPO.A East (Engineman &amp; Conductor) - Eng. 351, 318, 326, Cars 3/21</p>   |           |                   |                           |              |               |                   |                                    |                               |                          |

| Report #  | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No.  | Device that Failed | Location                  | Collision or Derailment? |
|---|-----------|-------------------|---------------------------|--------------|---------------|--------------------|--------------------|---------------------------|--------------------------|
| <b>303</b>  | 3/10/2001 | CSXT              | CTC                       |              |               | V829-10            | Phantom Aspect     | D Tower, Grafton, WV      | N                        |
| <p>On Saturday evening March 10, 2001 eastbound train V829-10 running from the Fairmont Subdivision to D Tower at Grafton reported a RESTRICTING signal. Initial investigation revealed that the signal had not been requested by the Jacksonville dispatcher. Signals were removed from service pending investigation. The field investigation revealed that the signal was at STOP but was sunlit. The team refocused the signals and installed an additional screening material as the signals already had Phankill installed. We are reporting this event but we do not consider this to be a false proceed.</p>  |           |                   |                           |              |               |                    |                    |                           |                          |
| <b>304</b>  | 3/11/2001 | CSXT              | CTC                       |              |               | N773-05            | Phantom Aspect     | North Acca, Richmond, VA  | N                        |
| <p>On Sunday, 3-11-01 at about 10:45 hours crew on northbound N773-05 reported a RESTRICTING signal on the northbound signal #4 track at North Acca. Initial investigation revealed the signal had not been requested by the Jacksonville dispatcher. Signals were removed from service pending investigation. Field investigation revealed the signal was at STOP but was sunlit. A long hood was installed on the bottom green unit which was sunlit and appeared Lunar. We are reporting this event but we do not consider this to be a false proceed.</p>   |           |                   |                           |              |               |                    |                    |                           |                          |
| <b>287</b>  | 3/12/2001 | BNSF              | AB                        |              |               | C CAMRTR001, En    | None               | Elesberry, MO             |                          |
| <b>305</b>  | 3/12/2001 | CSXT              | CTC                       |              |               | Q245-10            | Workmanship        | Vandalia, OH              | N                        |
| <p>On 3-12-01 train Q245-10 received a MEDIUM CLEAR signal entering the siding at Vandalia into a MEDIUM CLEAR signal crossing over at Vandalia crossover. Signals were removed from service pending investigation. Field investigation revealed that recently installed signals were designed for medium speed while a slow speed crossover was in service. The signals were immediately downgraded to RESTRICTING and STOP. Proper test and inspections were performed and signals were restored to service.</p>  |           |                   |                           |              |               |                    |                    |                           |                          |
| <b>661</b>  | 3/13/2001 | ST                |                           | Automatic    |               |                    | GRS B-1 Relay      | Detroit, Maine            | N                        |
| <p>Local WA2 (Conductor, Engineer) - cars 5/10, power 72-77<br/>POBK (Conductor, Engineer) - cars 7/69, power 317-216-372-329</p>   |           |                   |                           |              |               |                    |                    |                           |                          |
| <b>662</b>  | 3/22/2001 | AMTK              |                           | Remote       |               | Engine 1016, Train | L716 Signal        | Somerville, Massachusetts | N                        |
| <p>Engineer on train no. 204 reported that dwarf signal L716 at Reading Junction was displaying a MEDIUM CLEAR (Green over Flashing Red) with signal L670 at FX displaying Red over Flashing Red (imperfectly displayed). Upon investigation it was found that due to high water conditions at FX Interlocking, false energy was allowed to flow due to grounds, causing the L670 AYPR, L670 AGPR, L670 BYPR, and L670 BGPR relays to be energized at FX Interlocking. This resulted in L716 signal at Reading Junction displaying a false proceed due to false energy on the signal control relays at FX Interlocking. Signals were removed from service until floodwaters receded. After signal components were cleaned and dried out, the signal system was tested and placed back into service.</p> |           |                   |                           |              |               |                    |                    |                           |                          |

| Report #  | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed     | Location             | Collision or Derailment? |
|---|-----------|-------------------|---------------------------|--------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| <b>319</b>  | 3/28/2001 | UP                |                           | Manual       |               | Unknown           | None                   | West Bridge Jct., LA | N                        |
| <p>On March 29, 2001 at 17:00 CST, at West Bridge Jct., LA, on the Livonia Subdivision, the westbound signal #7 at MP 10.2 stayed Yellow after a westbound train passed it and occupied the track circuit west of the signal #7.</p> <p>An investigation revealed that pulling levers for signals #6 and #7 in the mechanical interlocker created a bridge that applied battery which held signal #7 Yellow.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>  |           |                   |                           |              |               |                   |                        |                      |                          |
| <b>288</b>  | 3/30/2001 | BNSF              | CTC                       |              |               | R-SCA0111-29      | Equation Error in VHLC | Commerce, CA         | N                        |
| <p>The R-SCA0111-29 was lined to follow the V-LACCHC4-29 (3 units of power) from the Vail Lead eastbound to Main Track #1 at MP 148.8 CP Vail. The crew on the R-SCA0111-29 observed that the eastbound signal at Vail, 10E, displayed a Red over Yellow aspect while the V-LACCHC4-29 was still in the block ahead. The R-SCA0111-29 did not proceed until the V train was east of the next Control Point at Bandini and reported the event to the dispatcher.</p> <p>Field logs and re-enactment were able to recreate the situation.</p> <p>Cause: The control point at Vail was placed in service on February 12, 2001. The 2E-HR, which is the block between Vail and Bandini on Main Track #1 was not in the logic equation for the 10EB signal and was not identified during in-service testing.</p> <p>Corrective Action: The logic equation was modified and signal system tested.</p> |           |                   |                           |              |               |                   |                        |                      |                          |
| <b>323</b>  | 4/4/2001  | UP                | AB                        |              |               | UP4267            | None                   | Optima, OK           | N                        |
| <p>On April 4, 2001 at 11:00 CDT, at Optima, OK on the Pratt Subdivision, eastbound MWCHN 02, on the main track at MP 460.80, reported a CLEAR eastbound signal at MP 460.80, with a switch reversed east of the signal.</p> <p>An investigation revealed that the switch circuit controller was improperly wired.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>  |           |                   |                           |              |               |                   |                        |                      |                          |
| <b>320</b>  | 4/4/2001  | UP                | CTC                       |              |               | UP3958 North      | None                   | Gorham, IL           | N                        |
| <p>On April 4, 2001 at 11:00 DST, at Groham, IL on the Chester Subdivision, northbound QNLPI-03 received a northbound DIVERGING CLEAR signal (Red over Red over Green) at CP D085 at MP 84.8 into a dark signal at CP C338.</p> <p>An investigation revealed that a signal gang, while cutting over new CP D338 had inadvertently applied battery to the 48DPR circuit which caused the DIVERGING CLEAR signal at CP D085.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>  |           |                   |                           |              |               |                   |                        |                      |                          |

| Report #   | Date      | Reporting Carrier | Block System Narrative | Interlocking System | Auto. Systems | Loco or Train No. | Device that Failed    | Location        | Collision or Derailment? |
|--|-----------|-------------------|------------------------|---------------------|---------------|-------------------|-----------------------|-----------------|--------------------------|
| <b>324</b>   | 4/5/2001  | UP                | CTC                    |                     |               | UP4128            | None                  | Ogden, UT       | N                        |
| <p>On April 5, 2001 at 12:20 MDT, at Ogden, UT on the Lakeside Subdivision, westbound AKSBEX 03, on the main track at MP 759.00, reported a Yellow over Red westbound signal at MP 759.0 with the next block occupied.</p> <p>An investigation revealed that the eastbound and westbound signal control wires were connected together at the 7577 track relay.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>   |           |                   |                        |                     |               |                   |                       |                 |                          |
| <b>337</b>   | 4/7/2001  | BNSF              | CTC                    |                     |               | ID # EMLMEBM001,  | 1WA Signal            | Napier, MO      | N                        |
| <p>At approximately 19:23 hours the train crew on the BNSF 9956 reported that as they approached the westbound absolute signal governing movement from Main Track Two to the Main Track at West Napier the signal went from a STOP indication to an APPROACH indication, back to STOP. It did this several times with a train in the block ahead. The train ahead was a westward train ID # EMAHCDM001A, that had made a movement from Main Track One to the Main Track. The Dispatcher had entered a stack that would automatically throw the switch and request the 1WA signal, when the OS was unoccupied. Investigation by signal personnel could not recreate the problem, however, the data recorder within the code unit, a Harmon Logic Controller and the train logger in Fort Worth verified the report. Further investigation revealed that mice had eaten the insulation off several of the flex wires going from the junction box of the signal to head. Insulation was missing off the WA-RP (Red Repeater) and the WA-NHD (control for the APPROACH aspect). This is a GRS H2 searchlight signal with a Safetran junction box and mast. The flex wire was replaced and the signal system tested with no other problems found.</p> |           |                   |                        |                     |               |                   |                       |                 |                          |
| <b>289</b>   | 4/8/2001  | BNSF              | CTC                    |                     |               | ID# MLAULIN1-05A  | Human Error           | Yuma, CO        | N                        |
| <p>The BNSF 8063 was an eastward train sitting in the siding at East Siding Switch Yuma. Eastward train ID# ZDENCHI9-08A, Engine # 4372 passed them on the main track. After the train had passed the dispatcher requested the switch reverse and an eastbound signal out of the siding. The train crew on the 8063 reported that their signal went from a STOP indication to a CLEAR indication. They communicated with the 4372 and determined that they were between the first and second intermediate signals to the east of Yuma. They realized that they should have had an APPROACH indication, stopped their train and reported this to the dispatcher. Signal personnel notified. The investigation revealed that the 40 BD relay should have been a biased relay (GRS A65-120) and was in fact a neutral relay (A65-345). The relay was replaced and the signal system tested with no other problems found. It could not be determined who or when this relay was installed.</p>   |           |                   |                        |                     |               |                   |                       |                 |                          |
| <b>290</b>   | 4/11/2001 | BNSF              | CTC                    |                     |               | Train YEMP2011-1  | Phantom Aspect Signal | Emporia, Kansas | N                        |
| <p>Train crew on 3-11-2001 stated that signal 20 RB was Yellow when they proceeded by it eastbound at NR Junction. All dispatcher and field logs show the signal to be Red, switches lined against move, no request ever received. No exceptions taken to all signal testing in field. The operational opinion is that a crew expecting a Yellow aspect might misconstrue the Red aspect to be Yellow at this time of day at this time of year. Signal voltage was at standard prescribed, but a outer lens was changed that did improve visual perception.</p>  |           |                   |                        |                     |               |                   |                       |                 |                          |

| Report #   | Date      | Reporting Carrier | Block System Narrative | Interlocking System | Auto. Systems | Loco or Train No. | Device that Failed | Location     | Collision or Derailment? |
|--|-----------|-------------------|------------------------|---------------------|---------------|-------------------|--------------------|--------------|--------------------------|
| 306  | 4/11/2001 | CSXT              | CTC                    |                     |               | U724-10           | Workmanship        | Sproul, WV   | N                        |
| <p>On 4-11-01, train U72410, coming off the Coal River Subdivision, reported an APPROACH signal westbound at Sproul Junction immediately after T78308 cleared OS circuit ahead. This should have been RESTRICTING. T78308 was a westbound train on the Big Coal Subdivision. The signals were removed from service pending investigation. The field investigation revealed that the reverse point detector stud had become loose and backed off on a T-21 hand throw switch for the spur track. This allowed both NWP and RWP relays to become energized at the same time. A contributing factor was the absence of a check circuit that would prevent the energizing of both the NWP and RWP relays simultaneously. Changes have been made and signals restored to service.</p> |           |                   |                        |                     |               |                   |                    |              |                          |
| 321  | 4/11/2001 | UP                |                        | Manual              |               | BNSF 9788         | None               | Wagoner, OK  | N                        |
| <p>On April 11, 2001 at 16:30 CDT, at Wagoner, OK on the Cherokee Subdivision, southbound CGDRO 10, on the main track at MP 486.3, reported the southbound approach signal to the Wagoner Interlocker displayed an APPROACH DIVERGING (Yellow over Yellow) into a Red southbound home signal.</p> <p>An investigation revealed that lightning had melted two wires together, which applied voltage to the bottom aspect of the southbound approach signal.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>   |           |                   |                        |                     |               |                   |                    |              |                          |
| 322  | 4/13/2001 | UP                | CTC                    |                     |               | Unknown           | None               | Caldwell, TX | N                        |
| <p>On April 13, 2001 at 06:07 CDT, at Caldwell, TX on the Flatonia Subdivision, westbound RHTCW-12, on the main track at MP 30.95, reported the westbound signal at FL031 was Green and the westbound signal at FL032 was Red.</p> <p>An investigation revealed a bad order PMTC receiver card at FL031.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>   |           |                   |                        |                     |               |                   |                    |              |                          |



| Report #   | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No.  | Device that Failed            | Location                        | Collision or Derailment? |
|--|-----------|-------------------|---------------------------|--------------|---------------|--------------------|-------------------------------|---------------------------------|--------------------------|
| 663  | 4/21/2001 | CN                |                           | Manual       |               | 4601               | 36B Signal                    | New Orleans, LA                 | N                        |
| <p>On April 21, 2001 at approximately 11:10 a Union Pacific train crew AV07 went by 36B signal with an alleged CLEAR signal (Green over Red) and proceeded into the plant when he noticed 19 switch lined against them. The train crew notified the East Bridge Operator, and the operator said he hadn't pulled the lever to give them the signal.</p> <p>There was a BN train on the Public Belt track going up the Huey P. Long Bridge. He had the 31 signal lined and the lever still out. 20, 21, and 22 switches were already lined reverse for the UP crew AV07 but 18 and 19 switches were still lined normal.</p> <p>The Inspector arrived at about 13:10 and found 36B signal vandalized. All the hoods were knocked off and the lenses had been hit with rocks and were cracked. At this time the Red aspect could be seen, and not mistaken for anything other than a Red, from the Shrewsbury crossing just south of the signal. Inspector checked for grounds at the signal house, no grounds found. He went over the steps the operator had taken that morning and attempted to reenact the incident. The 36B signal remained Red. When 18 and 19 switches were normal and the operator cleared 36B signal, the inspector reported the signal was Yellow over Red. Then the operator lined the route up to the bridge, 18 and 19 switches lined reverse and called for the 36B signal. 36B was Yellow over Red. All circuits were clear going up to the Huey P. Long Bridge and no grounds were found at East Bridge. The reported incident could not be reproduced. Due to excessive vandalism at this location, on April 25, 36A and 36B signals and the cable were replaced for precautionary reasons.</p> |           |                   |                           |              |               |                    |                               |                                 |                          |
| 307  | 4/27/2001 | CSXT              | CTC                       |              |               | T676-23            | Workmanship                   | Apex St. Albans, St. Albans, WV | N                        |
| <p>At 0216 hours on April 27, 2001, the train crew of T67623 reported having a MEDIUM APPROACH SLOW (R/Y/G) into a MEDIUM APPROACH EB signal at the Apex Wye at St. Albans. The eastbound signals were removed from service at the Apex Wye at St. Albans. The proper signal should have been a SLOW CLEAR (R/R/G). This was confirmed in testing by signal personnel. The preliminary investigation revealed a wire in the lighting circuit was incorrectly wired to the heel contact of the LA&amp;JR. The wire should have been on the back contact of this relay. This allowed the Yellow aspect to be energized rather than the Red aspect. After consulting with signal design personnel, wiring was corrected and testing completed. The signals were returned to service.</p>  |           |                   |                           |              |               |                    |                               |                                 |                          |
| 311  | 5/8/2001  | NS                | AB                        |              |               | 9571               | Line Wire Circuit             | Columbus, OH                    | N                        |
| <p>At approximately 10:18 a.m. on May 8, 2001 Train No. 615 southbound reported a CLEAR signal indication at automatic signal 134.1 with automatic signal 135.1 at STOP AND PROCEED and southbound train LY18 approximately 500 feet in advance of the signal 135.1. Crew of train 615 stopped approximately 1000 feet short of signal 135.1 and notified the Dearborn dispatcher.</p> <p>C&amp;S personnel investigated and found a piece of line wire bridging the line wire circuit between the H and D wires. The wire was laying across the line wires at MP AM 134.9. The line wire was inspected and the signals were restored to service.</p>  |           |                   |                           |              |               |                    |                               |                                 |                          |
| 291  | 5/9/2001  | BNSF              | CTC                       |              |               | BNSF 8234, Train P | Improper Wiring - Human Error | Vernon, CA                      | N                        |
| <p>Signal gang was wiring in permanent circuits for a switch lock located at MP 145.3 to new vital house MP 145.1. They relocated temporary line protection thru NWBP circuit from the field side of arrestor to house side of the arrestor wire one wire at a time. They hooked up a new circuit that was intended for the next phase cutover on top of the existing NWBP circuit thus introducing foreign battery with straight polarity. When the 2W signal at East Hobart was cleared it went to Green over Red instead of the proper aspect Yellow over Red. Wiring was removed and all affected circuits tested.</p>   |           |                   |                           |              |               |                    |                               |                                 |                          |

| Report #   | Date     | Reporting Carrier | Block System Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed          | Location            | Collision or Derailment? |
|--|----------|-------------------|------------------------|--------------|---------------|-------------------|-----------------------------|---------------------|--------------------------|
| 665  | 5/9/2001 | DH                | AB                     |              |               |                   | Signal 588.6A               | MP 588.6, Afton, NY | N                        |
| <p>Su2 was stopped at CPF590 on the controlled siding with train #550-08 stopped behind them at signal 588.6 waiting for a northbound train. CPF590 was cleared north on the main track. Train 550-08 had reported that signal 588.6A (southward approach to CPF590 on the main tk) was going from Red to Green. Su2 reported CPF590 staying at STOP. The cause was overhanging tree limbs at MP 589.2 wrapping line wires #3 and #4 on the middle crossarm. Pin #3 is 29LAHD and Pin #4 is 116.2CHD. This condition had signal 588.6A going Red to Green. After the line wires were unwrapped to clear the problem we had then resimulated the problem by putting the wires back together. The signals were returned to service at 13:14 hrs on 5-11-01.</p>  |          |                   |                        |              |               |                   |                             |                     |                          |
| 664  | 5/9/2001 | IMRL              | APB                    |              |               | IMRL 358          | None                        | Savanna, IL         | N                        |
| <p>On May 9, 2001, Engineer on train I 111B 07 reported that while proceeding eastward on No. 2 Track to run around train occupying the Main Track, both eastward signals at Plum (No. 2 Track and Main Track signals) displayed CLEAR aspects simultaneously. At this time the proper aspect for the eastward signal governing movement on the Main Track was CLEAR and the eastward signal governing movement on No. 2 Track should have displayed a Red.</p> <p>Signal Department personnel immediately investigated this incident and determined the signal system functioned as intended. Personnel meggered all underground cables, tested relays, performed ground tests, performed switch tests, performed fouling tests and tested searchlight signals. Personnel also performed operating tests multiple times to recreate this incident. Subsequent to tests, signal system functioned as intended.</p> |          |                   |                        |              |               |                   |                             |                     |                          |
| 325  | 5/9/2001 | UP                | CTC                    |              |               | UP7578            | None                        | Orogrande, NM       | N                        |
| <p>On May 9, 2001 at 12:31 MDT, at Orogrande, NM on the Carrizozo Subdivision, eastbound ILCIM-08, on the main track, was lined to the siding, and at MP 921.80, reported the eastbound signal at TC922 at West Orogrande was Red over Yellow (DIVERGING APPROACH), with a switch in the siding lined against him.</p> <p>An investigation revealed the Switch Circuit Controller was wired incorrectly causing the Normal Switch Repeater Relay to energize with the switch reversed.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>   |          |                   |                        |              |               |                   |                             |                     |                          |
| 666  | 6/4/2001 | NICD              | APB                    |              |               | 2006              | Line Circuit                | Michigan City, IN   | N                        |
| <p>Foreign signal governing entrance to NICTD main line was vandalized causing false feed of line circuit controlling NICTD dwarf signal 317. False feed was removed and signal tested okay. Foreign line is now locked out of service. NICTD is developing plans for new NICTD-maintained dwarf signal governing entrance to mainline from foreign railroad.</p>  |          |                   |                        |              |               |                   |                             |                     |                          |
| 668  | 6/5/2001 | DH                |                        | Remote       |               | Train #SCR        | Eastward Home Signal CPF467 | Mechanicsville, NY  | N                        |
| <p>The Springfield Terminal Dispatcher had called train #SCR to see why they had proceeded through the control point at CPF467. The Dispatcher did not have a signal cleared at this location. At this time train SCR had reported that they had an APPROACH signal at CPF467. The signal at CPF467 was out of focus due to a broken bracket that held the signal housing. With the signal out of focus and the position of the sun shining on the signal had caused the signal to appear Yellow. The signal bracket was replaced and the signal was refocused. The signal was rechecked under the same condition and the signal displayed the proper aspects.</p>   |          |                   |                        |              |               |                   |                             |                     |                          |

| Report #   | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking Systems | Auto. Systems | Loco or Train No.  | Device that Failed | Location           | Collision or Derailment? |
|--|-----------|-------------------|---------------------------|----------------------|---------------|--------------------|--------------------|--------------------|--------------------------|
| 667  | 6/5/2001  | DH                | AB                        |                      |               | Train #268         | Signal 2.2         | Menands, NY        | N                        |
| <p>Train #268 had reported that the southbound signal at CP04 went from STOP to CLEAR (for about 2 sec.) and back to STOP again. The work train (2 lite engines) was going south ahead of train #268. When the work train went past signal 2.2, it caused the timing between the Electrocode circuits south of the signal and the DC battery circuits north of the signal to allow this condition to exist. We have corrected this timing problem and retested the signals.</p>        |           |                   |                           |                      |               |                    |                    |                    |                          |
| 669  | 6/8/2001  | MNCR              |                           | Remote               |               | Train #708, Engine | 2S Signal          | CP 58 - Beacon, NY | N                        |
| <p>Train #708 received a NORMAL cab signal for a short period of time when the 2S signal at CP58 was at STOP, due to a failure of the insulated joints adjacent to the signal. The failure downgraded the signal to STOP as the train approached, while permitting cab signal intended for this train after passing the signal, to be received before passing the signal.</p>  |           |                   |                           |                      |               |                    |                    |                    |                          |
| 326  | 6/11/2001 | UP                | CTC                       |                      |               | UP3035             | None               | Council Bluffs, IA | N                        |
| <p>On June 11, 2001 at 15:30 CDT, at Council Bluffs, Iowa on the Omaha Subdivision, westbound UP 3035 on Track 2 at CPB 001 reported the Dwarf Signal #20 gave a Red over Lunar aspect.</p> <p>An investigation revealed the lower unit of the dwarf signal had a burned out bulb, and was dark on red. The sun wash into the lenses gave it the appearance of a lunar aspect.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p> |           |                   |                           |                      |               |                    |                    |                    |                          |

| Report #  | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed               | Location  | Collision or Derailment? |
|---|-----------|-------------------|---------------------------|--------------|---------------|-------------------|----------------------------------|---|--------------------------|
| 312   | 6/16/2001 | NS                | CTC                       |              |               | NS 9360           | Track Circuit                    | Briswold, GA                                    | Y                        |
| <p>On 6/16/01 at 12:45 a.m. near Control Point East Griswold, GA at MP S181.1, Georgia Division Train # 191G515, lead unit 9360, struck the rear car JMHX 69090 of Georgia Division train # 119G514. Train #119 was at a stop waiting for train #192 going eastbound into the siding track at Control Point West Griswold at MP S182.7, train #191 was westbound following train #119.</p> <p>The westbound signal at East Griswold displayed an APPROACH aspect for the main track and with the main track between east and west Griswold occupied by train #119. Train #119 was waiting for eastbound train #192 to enter the siding and then was to continue westbound. Train #191 was to follow train #119 westbound and occupy the main track between the switches at Griswold, clearing the way for train #192 to proceed through the siding to the main track at East Griswold. Train #191 had a CLEAR signal at the approach signal at MP S178.2 and then an APPROACH aspect at the westbound control signal at East Griswold. The approach signal should have displayed an APPROACH aspect at S178.2 and the control signal at East Griswold should have displayed a STOP aspect. The conditions were able to be recreated and the false clear aspect displayed numerous times during testing.</p> <p>The circuitry involved is the track transmission and receive circuits of the Union Switch and Signal track code logic. This coded track circuitry was modified in January 2000 for a highway grade crossing upgrade installation at Henderson Road crossing at MP S181.1. The upgrade included the installation of a code isolation unit that is supposed to isolate the signal system track coming from the detection circuits of the highway grade crossing equipment. Testing showed that the code isolation unit was reflecting the coding information sent by the East Griswold location back into itself, through a capacitance effect generated by the isolation unit.</p> <p>The application of this particular code isolation unit in the circuit was modified after consultation with the supply vendor to eliminate the fault condition. In addition, electronic track circuit equipment will be installed as this type circuitry would eliminate the need of the code isolation unit and the fault condition altogether.</p> |           |                   |                           |              |               |                   |                                  |   |                          |
| 670   | 6/19/2001 | METX              |                           | Manual       |               | EJ&E #666         | Tested/No Defects (see attached) | Spaulding Interlocking, MP 32.6, Chicago, Illin | N                        |
| <p>Westbound EJ&amp;E locomotive #666 reported a CLEAR signal at Spaulding, signal 10L. Train proceeded past signal for head-room to shove back into Spaulding Yard. Operators claim that no signal was displayed for that move.</p> <p>Signals at Spaulding Plant were put to STOP until Plant could be inspected. The following tests were performed: 236.102, 236.107, 236.109, 236.378, 236.379, 236.380. Test results were recorded and plant was found to be working as intended. (results attached) Plant was placed back in service at 12:01 AM with no restrictions.</p>   |           |                   |                           |              |               |                   |                                  |   |                          |
| 671   | 6/20/2001 | CR                |                           |              |               |                   | As Information Only.             | CP Mill, Ecorse, MI                             | N                        |
| <p>Jumper applied to 2TPR for track work, not removed when Track Department finished. Jumper removed and employees responsible disciplined.</p>   |           |                   |                           |              |               |                   |                                  |   |                          |

| Report #   | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking System | Auto. Systems | Loco or Train No. | Device that Failed | Location                                    | Collision or Derailment? |
|--|-----------|-------------------|---------------------------|---------------------|---------------|-------------------|--------------------|---|--------------------------|
| <a href="#">672</a>  | 6/21/2001 | AMTK              |                           | Remote              |               | Engine #552       | 42EA Signal        | Sunnyside Yard "R" Interlocking, Queens, Ne | Y                        |
| <p>Switching engine #552 (operating as switching crew 53A with 1 car) was operating east at signal 42EA with RESTRICTING signal aspect being displayed for a move from track #30 to Lead #3 thru #35 crossover to Lead #4. When engine #552 physically entered Lead #4, car #48981 of Amtrak train #102 was struck account being in foul of #35 crossover. Upon investigation, insulated rail joint separating 402 and 403 track circuits on Lead #4 was incorrectly installed too close to the west of east end of #35 switch. Insulated rail joint has been relocated 47' west of the existing joint location allowing proper clearance. Further investigation into determining responsibility is being conducted.</p>   |           |                   |                           |                     |               |                   |                    |   |                          |
| <a href="#">673</a>  | 6/25/2001 | KCS               | CTC                       |                     |               | KCS 685           | B1 Relay           | Page, OK                                    | N                        |
| <p>At 13:27hrs on 06/25/01, train #109824 North left the switch at North Page on signal indication traveling north. The dispatcher requested a follow up signal behind train #109824 for train 108224 to follow him north. At 13:37hrs on 06/25/01, train #108224 North with engines KCS685, KCS717, IMRL213, KCS2040, and KCS2034 with Engineer [redacted], and Conductor [redacted], and a consist of 34 loads, 47 empties, 5548 tons and 5192 feet, arrived at the north siding switch at Page, MP 353.9 with a Green over Red displayed for a north bound move. Train #108224 confirmed the location of train #109824 and realized he was only by the first signal north of Page at MP 351.8. Upon inspection by Signal Engineer [redacted], Signal Supervisor [redacted], and Signal Supervisor [redacted], we were able to reproduce the failure. We discovered that the north bound Yellow Green Repeater (12YGPR) relay at the first intermediate north of Page at Mile Post 351.8 was failing to drop out causing a Code 4 (Electrocode) to be transmitted south to the north switch at Page. There was no visible evidence for why the relay was hanging up. It would remain up even when gently removed from the plugboard. The information on the defective relsy is as follows: GRS B1, 300 ohm, D.C. Neutral, Drawing #56001-750 GR1, Serial #142277, manufacturer's inspection date is 5/14/53.</p> |           |                   |                           |                     |               |                   |                    |   |                          |
| <a href="#">327</a>  | 7/3/2001  | UP                | CTC                       |                     | ACS           | UP 6869           | None               | Nevens, NE                                  | N                        |
| <p>On July 3, 2001 at 13:16 CDT, at Nevens, Nebraska on the South Morrill Subdivision, eastbound CNRWX 02, on the main track at MP 18.7, reported the eastbound signal WO18 displayed a Yellow aspect with the track east of Signal WO18 occupied.</p> <p>An investigation revealed a loose terminal washer had caused a short in the BELOR relay that caused the AEHR relay to pick and display a Yellow aspect from eastbound signal WO18.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>   |           |                   |                           |                     |               |                   |                    |   |                          |
| <a href="#">674</a>  | 7/4/2001  | NJTR              |                           | Remote              |               | N/A               | Span/Rail Locks    | Newark Drawbridge - "Broad" Interlocking, N | N                        |
| <p>M&amp;E train dispatcher reported signals indicated they went to STOP, rail locks not locked, and track circuit occupancy on both tracks at Newark Drawbridge with no trains present and no drawbridge opening requested. The lift rails were found in the raised position with the swing span unlocked and ready to open. With the emergency system the bridge was manually locked and the rails were lowered. The automatic drive system was disengaged and de-energized to allow safe movement of trains. Investigation revealed that the wedge and rail drive control system had become falsely energized by a faulty output from the programmable logic controller used to operate the drawbridge automatically. The drive control circuit was revised to include a physical contact of the signal master relay as well as the existing software interlock.</p>  |           |                   |                           |                     |               |                   |                    |   |                          |

| Report #  | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking System | Auto. Systems | Loco or Train No. | Device that Failed           | Location                  | Collision or Derailment? |
|---|-----------|-------------------|---------------------------|---------------------|---------------|-------------------|------------------------------|---------------------------|--------------------------|
| <b>308</b>  | 7/5/2001  | CSXT              | AB                        |                     |               | D750-05           | Workmanship                  | Signal 1598, Sterling, OH | N                        |
| <p>At 0845 hours on July 5, 2001, D750-05 train crew observed Signal 1598 displaying a CLEAR (G/R) signal while moving eastbound, following behind train K518-02, which was ahead in the second block. D750-05 stated that Signal 1598 stayed CLEAR for approximately 30 seconds before changing to an APPROACH aspect (Y/R). D750-05 train crew informed the train dispatcher of the signal incident and dispatcher informed the train crew to treat the signal as RESTRICTING. Signals were removed from service. Investigation revealed that the line overlay was not properly broken through the track relays, thus giving the improper signals. Design was notified and the proper wire breaks were designed, installed and tested. Signal system was restored to service.</p> |           |                   |                           |                     |               |                   |                              |                           |                          |
| <b>675</b>  | 7/9/2001  | CR                | CTC                       |                     |               |                   | 2N-2 Signal                  | Camden, NJ                | N                        |
| <p>2N-2 interlocking signal, governing northbound moves off the controlled siding at CP Mill on the Vineland Secondary, was reported to be displaying SLOW APPROACH when the signal on the main (2N-1) was displaying RESTRICTED. Investigation revealed wiring change was made to 2N-2 lighting circuit earlier and was not properly tested. Change was removed and signal tested without any other exceptions. Responsible parties involved were appropriately disciplined.</p>   |           |                   |                           |                     |               |                   |                              |                           |                          |
| <b>676</b>  | 7/11/2001 | MNCR              |                           | Remote              |               | Locomotive 105    | On-Board Cab Signal Tester   | CP233 - Stamford, CT      | N                        |
| <p>Locomotive #105 received MEDIUM Cab Signal intermittently while approaching signal 1E at CP 233 at STOP, due to interference from the On-Board Cab Signal Test Unit of the locomotive.</p>   |           |                   |                           |                     |               |                   |                              |                           |                          |
| <b>328</b>  | 7/13/2001 | UP                | CTC                       |                     |               | UP0705            | GRS SA Searchlight Mechanism | Houston, TX               | N                        |
| <p>On July 13, 2001 at 03:20 CDT, at Houston, TX on the Houston East Belt Subdivision, northbound YBS80-12, on 2 Tk at MP 5.40, received a Green aspect north of EB061 at northbound signal 52 into a Red aspect at northbound signal 57 at Wallisville Rd.</p> <p>An investigation revealed water in the SA Signal Mechanism at signal 57 causing the YGPR to pick, which sent a Code 4 back to signal 52, causing the Green aspect.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>   |           |                   |                           |                     |               |                   |                              |                           |                          |
| <b>292</b>  | 7/25/2001 | BNSF              | AB                        |                     |               | C ATMMAS1-03, E   | Poleline                     | New London, Iowa          | N                        |
| <p>Train C ATMMAS1-03 stopped at Red Sig S220.6. There was a train in the block ahead, stopped at Sig S218.8. When the train ahead moved out of the block ahead, Sig S220.6 went to Green instead of Yellow. The Signal Supervisor and Maintainer were notified to perform tests and inspections at the location. The tests revealed foreign battery on the SD wire for Sig S220.6 caused by a cross between SD and ND on the poleline. A pole had fallen over and twisted, allowing the line wires to sag to the brush and weeds, causing the crossed battery. There had been rain and the weeds and brush were wet allowing current flow. The pole was repaired, the system tested for proper functioning and returned to service.</p>  |           |                   |                           |                     |               |                   |                              |                           |                          |
| <b>677</b>  | 7/27/2001 | CP                |                           | Manual              |               | CP 5653           | Signal 3WB                   | Bryn Mawr Interlocking    | N                        |
| <p>It was reported that signal 3WB indicated CLEAR (Green) for a call on move by crew of CP 5653. All data &amp; info was retrieved &amp; all tests performed. Indicated no defects. Please see following attachments [nothing attached].</p>   |           |                   |                           |                     |               |                   |                              |                           |                          |

| Report #  | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed | Location        | Collision or Derailment? |
|---|-----------|-------------------|---------------------------|--------------|---------------|-------------------|--------------------|-----------------|--------------------------|
| 293   | 7/29/2001 | BNSF              | CTC                       |              |               | SCWSLBP1 28       | CL-5483            | Amarillo, TX    | N                        |
| <p>WB train SCWSLBP1 28, on MT 1 reported westbound signal 5483 MT 2 Green with eastbound train, HBARKCK1 28, on the eastbound approach to signal 5484/5483 on MT2.</p> <p>Upon arrival signal 5483 was observed to be dark. A shunt was placed on the eastbound approach to signal 5484/5483 on MT2 signal 5484 was Yellow and signal 5483 was dark/dark. 40 seconds later signal 5483 went Dark/Green for @ 3 seconds then went back to dark/dark. This scenario repeated itself every 40 seconds. The 213 module in the Electrocode 4 cabinet had been damaged by lightning storms that had been in the area was changed and required tests performed. The signal system was then returned to service working as intended.</p> |           |                   |                           |              |               |                   |                    |                 |                          |
| 678   | 8/15/2001 | ARR               |                           | Manual       |               | 4009              |                    | South Hurricane | N                        |
| <p>North bound absolute signal at South Hurricane displayed STOP indication. Train with engine 4009 moved past the signal to occupy the OS circuit and take the power operated switch on hand. After stopping with the lead truck in the OS circuit the power switch moved to the reverse position and the north bound signal indicated PROCEED. The engine had lost shunt in the OS circuit due to the presence of a foreign material on the top of the rails. The material was removed from the rails and the circuit tested to insure proper operation.</p>  |           |                   |                           |              |               |                   |                    |                 |                          |
| 329   | 8/15/2001 | UP                | CTC                       |              |               | BNSF 4486         | None               | Apache, AZ      | N                        |
| <p>On August 15, 2001 at 10:21 MDT, at Apache, AZ on the Lordsburg Subdivision, westbound CDGCO-14, on #1 Tk, reported the westbound approach signal on #1 Track at MP 1063.3 displayed a Yellow over Green aspect into a Red over Lunar westbound home signal at CP S1061, with his route lined from the #1 Tk on the Coal Lead Track.</p> <p>An investigation revealed the lower colorlight lunar aspect at the westbound signal at MP 1063.30 had a green inner lens installed instead of a lunar lens.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>  |           |                   |                           |              |               |                   |                    |                 |                          |
| 313   | 8/16/2001 | NS                | CTC                       |              |               | 9369              | Signal "HD" Relay  | Vansant, VA     | N                        |
| <p>At approximately 7:00 p.m. on 8/16/01, train U70U616, running westbound on Big Prater Branch, observed a CLEAR aspect on the 391 eastbound operative approach signal at MP BP 0.4. Signal was displayed into a de-energized OS track repeater circuit and displayed a STOP aspect on the 98R signal at Control Point Vansant. Investigation revealed the 391HD relay positive and negative signal wires had been swapped during trouble on 8/15/01 by assigned Signal Maintainer for this territory. The swapped polarities caused the 391HD relay (250 ohm polar relay) to pole normal displaying a CLEAR aspect when it should display an APPROACH aspect. Corrections were made and signal restored to service 8/17/01.</p> |           |                   |                           |              |               |                   |                    |                 |                          |

| Report #   | Date      | Reporting Carrier | Block System Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed         | Location                           | Collision or Derailment? |
|--|-----------|-------------------|------------------------|--------------|---------------|-------------------|----------------------------|------------------------------------|--------------------------|
| 294  | 8/21/2001 | BNSF              | CTC                    |              |               | M KCKIHB1 19, Eng | None                       | Ransom, IL                         | Y                        |
| <p>Train M KCKIHB1 19, Engine ATSF 663, alleges that while operating eastbound on Main Track 2 near Ransom, Illinois, they proceeded past block signal 812 displaying a Flashing Yellow aspect and then collided with the rear end of train Q LACNYC1 17, which was stopped just beyond signal 782. The train crew did not know the aspect displayed by signal 782. The signal instrument housings in the area were locked until the arrival of a FRA representative. The signal housings were jointly entered by the FRA representative and signal supervision of BNSF. The position of relays were noted with no exceptions taken. Testing of the signal system was initiated to simulate the train movements with no exceptions taken. Cross and grounds, megger and relay visual and electrical tests were performed on associated apparatus with no exceptions taken. The wiring in the signal mast at Signal 812 was removed for visual inspection with no exceptions taken.</p>             |           |                   |                        |              |               |                   |                            |                                    |                          |
| 295  | 8/26/2001 | BNSF              | CTC                    |              |               | Z-KCKRIC1-26A M   | Line Circuits were Wrapped | Kansas City, Kansas                | N                        |
| <p>Crew of Z-KCKRIC1-26A westbound on Main 3 proceeding on Green/Red at Holiday MP 13.5 reported seeing a Yellow/Green at Int. MP 12.8 Main 1, and analyzed that the aspects display would be a conflicting route to their route at West Holiday MP 14.40. They reported situation to dispatcher and dispatcher had the westbound SCWSLBP1-25, who had not reached Morris MP 11.0, proceed prepared to stop at signals 12.8 and at West Holiday. This train crew saw the Yellow/Green at MP 12.8 and had a Red/Red at West Holiday Main 1. Signal forces were able to duplicate the Yellow/Green aspect at MP 12.8 and Red/Red at West Holiday. Line wraps in the 21 LGRN-NWBP1, 21 LGR-NWDP1 and 24 LMRN-NWBP circuits discovered and removed. ACG/DC to DC converter also added to isolate batteries on 21-LGR and 21-LGRN circuits. Line wraps due to storms in area and problem intermittent. All circuits tested and signal system returned to service.</p>                                   |           |                   |                        |              |               |                   |                            |                                    |                          |
| 296  | 8/31/2001 | BNSF              | CTC                    |              |               | NS-112-28, Engine |                            | Kansas City, Kansas                | N                        |
| <p>Crew of NS-112-28 westbound stated that they had a Yellow over Red at 12th Street main 2 and a Yellow over Red at AY (CP 39) on main 2. Signals were taken out of service. The dispatcher and field logs show that a signal was never requested or indicated at AY (CP 39). There were no exceptions taken in all field tests. Signal system was restored to service. On 09/01/2001 at the same time (1059 hours) as incident with the same engine the signals were observed on main 2. Signals were Red over Red until nearing the 2W signal. At that time an eastbound train loaded with double stack containers on main 3 went by 2W signal and the top head could be perceived as Yellow, Lunar, or Red account sun reflecting off the top of the aluminum containers causing a phantom aspect. The outer lens of the H-5 (2WA) signal were removed and signal head was re-aligned. The aspects were then observed with container train on main 3 and no phantom aspects were observed.</p> |           |                   |                        |              |               |                   |                            |                                    |                          |
| 679  | 9/5/2001  | URR               |                        | Remote       |               | Engine 30         | 188 Signal                 | J Tower Interlocking, Duquesne, PA | N                        |
| <p>On September 5, 2001 at approximately 11:00 AM, engine 30 reported an APPROACH MEDIUM aspect on signal 188 and a STOP aspect on signal 150. Upon arrival, Signal Manager [redacted] had the Union Railroad TMD (Dispatcher) request a signal on 188 and an APPROACH MEDIUM aspect displayed (Yellow over Green). The proper aspect should have been an APPROACH (Yellow). Signal 188 was taken out of service.</p> <p>Plant grounds were checked and found okay. Voltages were checked between case 27 and case 186. Cable 27-186A was meggered and had several bad conductors in the 19 conductor cable. This cable was last meggered on 12/1/98. A new 9 conductor cable was run and circuits were moved to the new cable. The new cable was meggered and all signal aspects were operationally checked. Signal 188 was put back in service.</p>  |           |                   |                        |              |               |                   |                            |                                    |                          |



| Report #   | Date      | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed | Location      | Collision or Derailment? |
|--|-----------|-------------------|---------------------------|--------------|---------------|-------------------|--------------------|---------------|--------------------------|
| 680  | 9/6/2001  | CP                | CTC                       |              |               | CP6055E           | 45L Sig.           | Buffalo, MN   | N                        |
| <p>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.</p> <p>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.</p>   |           |                   |                           |              |               |                   |                    |               |                          |
| 330  | 9/10/2001 | UP                |                           |              |               | UP4341            | None               | Templeton, CA | N                        |
| <p>On September 10, 2001 at 15:42 PDT, at Templeton, CA on the Coast Subdivision, southbound QRVDO 10 on the main track reported the southbound signal at MP 216.4 was Green, and the next southbound signal at the North End of Templeton at MP 217.6 was Red.</p> <p>An investigation revealed a line wrap at MP 217.0 that caused the Green signal at southbound signal at MP 216.4.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>  |           |                   |                           |              |               |                   |                    |               |                          |
| 314  | 9/11/2001 | NS                | CTC                       |              |               | TR3529211         | Phantom Signal     | Leesville, VA | N                        |
| <p>At approximately 9:54 a.m. on 9/11/2001, Train TR 3529211, running eastbound on the siding at Amos Branch, MP V-210.0 on the Altavista District, Virginia Division, reported they had a CLEAR signal to leave the Amos Branch siding. Train TR 3529211 entered the siding at Control Point Huddleston, approached the control point at Amos Branch and stopped short of the eastbound control signal at Amos Branch which was displaying a STOP signal. At 9:54:43, TR 3529211 reported they had a CLEAR signal to leave Amos Branch. All signals at Amos Branch indicated STOP with switch normal to the dispatcher. The dispatcher had not requested the signal clear nor had the switch been requested reverse. At 9:54:55 TR 3529211 reported the signal at Amos Branch had changed to STOP after moving approximately 1 and 1/2 car lengths.</p> <p>Initial review indicated a phantom aspect. Conditions were identical the next day, 9/12/01 at 9:45 a.m., and a phantom aspect was observed by C&amp;S and Transportation personnel from the previous day's engine position on the eastbound control signal for the siding at Amos Branch. The STOP aspect was not visible and a reflection in the clear position was observed. The sun was to the left approximately 22-25 degrees from top 90 degree. It reflected off the top signal mast pinnacle and a cable junction box located below the background to give the appearance of two spots in the same general position as a CLEAR aspect. Signals in question are color position light signals. Lamps were set at 6.9 volts with 25 watt bulbs.</p> <p>To correct the situation, signals have been refocused, 20 watt bulbs installed and voltage raised to 8.0 - 9.2 VDC on all signals at CP Amos Branch. Cable junction box was rotated so sunlight would not reflect toward oncoming train.</p> |           |                   |                           |              |               |                   |                    |               |                          |

| Report #  | Date       | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed   | Location         | Collision or Derailment? |
|---|------------|-------------------|---------------------------|--------------|---------------|-------------------|----------------------|------------------|--------------------------|
| 331   | 9/12/2001  | UP                | CTC                       |              |               | UP6822            | None                 | Kress, IL        | N                        |
| <p>On September 12, 2001 at 01:48 CDT, at Kress, IL on the Geneva Subdivision, westbound CMHVC 12, on track #3 at MP 32.1, reported their cab signal cleared for their train on track #3, when the westbound signal on track #2 was CLEAR (cab signals on track #3 should display RESTRICTING when westbound train is cleared on track #2).</p> <p>An investigation revealed that required track wires were still connected to tracks #2 and 3. These wires were shorted together while performing directional boring, and fed cab signal energy intended for track #2 to track #3.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>   |            |                   |                           |              |               |                   |                      |                  |                          |
| 315   | 9/18/2001  | NS                | CTC                       |              |               | P83P918           | Signal "HD" Circuits | Charlotte, NC    | N                        |
| <p>At approximately 4:40 p.m. on 9/18/01, Train P83P918, running southbound on Track #1 approaching the control point at North Advance, MP 379.6 on the Piedmont Division observed a DIVERGING CLEAR aspect on the southbound control signal. This was after receiving a RESTRICTING aspect at the approach signal at Summitt Avenue, MP 378.4. They were anticipating a STOP signal at N. Advance due to an occupied block indication between N. Advance and Charlotte Jct., MP 380.6 for Track #1. Switch was requested and indicating normal at N. Advance.</p> <p>Investigation revealed that the track circuit between N. Advance and Charlotte Jct. for Track #1 was a center fed DC track circuit with two track relays. One on the north end of the circuit and one on the south end. "HD" information for N. Advance is sent from Charlotte Jct. to N. Advance in a multiconductor cable between the two control points.</p> <p>A track production gang had worked track between Charlotte Jct. and N. Advance earlier that day and caused track leads for the south track relay at Charlotte Jct. to open, de-energizing the relay. Contacts of the relay were in the indication circuits and indicated an occupied block. However, they were not in the 227LBHD circuit and did not de-energize this circuit. Dispatcher had requested a follow-up move at N. Advance. The 227LBHD relay was energized and allowed the DIVERGING CLEAR (Red/Green/Red) to display.</p> <p>Circuits were corrected adding contacts of the 221RT track relay in the 227LBHD circuit to open the circuit with the track relay deenergized.</p> <p>The corrections were implemented and tested on 9/19/01.</p> |            |                   |                           |              |               |                   |                      |                  |                          |
| 297   | 10/22/2001 | BNSF              | CTC                       |              |               | MGALCNI1-22, Eng  | None                 | Verona, Illinois | N                        |
| <p>At approximately 7:20 PM on October 22, 2001, the MGALCNI1-22 reported that eastbound main 2 Signal 732 was displaying a CLEAR aspect and that the home signal at Verona on main 2 was Red. A Signal Maintainer had been sent to the location on another issue (controlled signal would not clear), when this report was generated. Through follow up conversations with the Ft. Worth control office technicians, the Signal Maintainer investigated the original report as the signal slotting off in the field and not a false proceed aspect. Subsequently, another report was generated and the Signal Supervisor and Signal Inspectors were dispatched to the location to perform tests and investigate the cause. Their findings were that a mouse had built a nest containing steel wool in the junction box base of the 4R Signal (Eastbound Signal on Main 2) at Verona, causing a crossing between the 4RNP, 4RAHDP, and 4RBHDP terminals. The nest was removed and further testing of the signal system was performed to verify proper operations.</p>   |            |                   |                           |              |               |                   |                      |                  |                          |

| Report # | Date       | Reporting Carrier | Block System<br>Narrative   | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed    | Location                                    | Collision or Derailment? |
|----------|------------|-------------------|---|--------------|---------------|-------------------|-----------------------|---|--------------------------|
| 681      | 11/1/2001  | MRL               | CTC<br>See attached [nothing attached].   |              |               |                   | Phantom Aspect        | Helena, MT                                  | N                        |
| 298      | 11/5/2001  | BNSF              | CTC   |              |               | CMCMJCC324A, B    | 2LA Signal            | Defiance Wye Spur, MP .6, Defiance Sub., Ga |                          |
| 299      | 11/15/2001 | BNSF              | CTC   |              |               | L TWI8101 15      | SA-1 Signal Mechanism | Minneapolis, MN MP 16.3, Control Point      |                          |
| 682      | 11/21/2001 | CR                | AB<br>Train NS69T engine 5412 reported signal 143 at CLEAR G/R and interlocking signal at FN Tower STOP R/R. Upon investigation, a maintainer found a pole down and tried to straighten it. In doing so, we believe he cleared a line wrap, which caused the HD relay to be falsely energized. When the supervisor arrived on the scene, he tried to recreate the problem, but he could not.  |              |               | NS69T, 5412       | 143 SIS               | Detroit Line                                | N                        |
| 332      | 11/28/2001 | UP                | AB<br>On November 28, 2001 at 17:22 CDT, at Palestine, AR on the Brinkley Subdivision, westbound QMECVJ/28, on the main track at MP 51.90, reported that the westbound signal at MP 51.90 was Flashing Yellow, and the next westbound signal at MP 51.00 was Red.<br><br>An investigation revealed that the 5K module in the Electrocode II unit at the westbound signal at MP 51.90 was intermittently failing causing the HD relay to pump causing the signal to display a Flashing Yellow.<br><br>The signal system was restored to proper operation, and all applicable tests were performed.   |              |               | BNSF 4742         | Electrocode II Unit   | Palestine, AR                               | N                        |
| 683      | 12/2/2001  | KCS               | CTC<br>At 14:21hrs on 12/2/01, train #RUN8, (IFG Local), with Engineer and Conductor, with a consist of 0 loads, 20 empties, 800 tons and 2169 feet was in the siding at the south siding switch at Joudon waiting on a meet with train #000230, (KCSH North), with Engineer and Conductor, and a consist of 21 loads, 15 empties, 2813 tons and 2281 feet. RUN8 was aware of the meet and was told that the north bound train #000230 was lined north up the main line by the siding switch. The crew on RUN8 notified the signal desk that the trailing signal out of the siding was displaying a Lunar (RESTRICTED signal). This location is not capable of displaying a Lunar. Upon investigation of the report by Signal Maintainer [redacted], it was discovered that the SA mechanism had been vandalized, shot by a rifle which knocked out the red lens but didn't break the bulb. |              |               | KCS 685           | Vandalism             | Jaudon, MO                                  | N                        |

| Report #   | Date       | Reporting Carrier | Block System<br>Narrative | Interlocking Systems | Auto. Systems | Loco or Train No. | Device that Failed | Location                    | Collision or Derailment? |
|--|------------|-------------------|---------------------------|----------------------|---------------|-------------------|--------------------|-----------------------------|--------------------------|
| <b>333</b>   | 12/2/2001  | UP                | CTC                       |                      |               | Unknown           | None               | Redding, CA                 | N                        |
| <p>On December 2, 2001 at 15:30 PST, at Redding, CA on the Valley Subdivision, an unknown southbound train on the main track at MP 286.90 reported that the intermediate southbound signal at MP 286.90 displayed a Yellow over Yellow aspect with the next southbound signal at North Lakehead displaying a Red aspect.</p> <p>An investigation revealed that the ditch lights, on high beam on a new Comfort Cab, were refracting off the lower ("B") head of the southbound signal at MP 286.90 causing a washed out Yellow aspect.</p> <p>The screen has been installed on the signal and the signal system was restored to proper operation, and all applicable tests were performed.</p> |            |                   |                           |                      |               |                   |                    |                             |                          |
| <b>684</b>   | 12/10/2001 | CP                |                           | Manual               |               | Amtrak 41, CP 605 | 2R Signal          | Milwaukee, WI               | N                        |
| <p>See attached [nothing attached].</p>  |            |                   |                           |                      |               |                   |                    |                             |                          |
| <b>309</b>   | 12/14/2001 | CSXT              | CTC                       |                      |               |                   | Train Bulletin     | Crandle Road, Walbridge, OH | N                        |
| <p>At 1500 on December 14, 2001, Supervisor responded to a report that the signals at Crandle Road indicated MEDIUM APPROACH indication (R/Y/R) over a #1 turnout when lined over the #1 crossover. The northbound signal on #2 track and the southbound signal on #1 track were removed from service. Verified the aspects and found a Detroit Division General Train Bulletin issued at 0001 on 10/01/01 incorrectly stating the signals at Crandle Road are Seaboard-style signals and are to be governed by CSX signal rules 281 through 296 and should have been Chessie-style signals covered by CSX Rules C281 through C296. The signals were restored to service at 1715.</p>          |            |                   |                           |                      |               |                   |                    |                             |                          |
| <b>685</b>   | 12/17/2001 | CN                | CTC                       |                      |               | CN 5780           | Approach Signal    | Flint, MI                   | N                        |
| <p>At 02:00 on 12/17/01 eastbound train with leading engine CN 5780 had an APPROACH MEDIUM aspect at signal 2676 on the Flint Subdivision, this aspect was less restrictive than APPROACH aspect the engine crew should have received. When investigating the cause of the discrepancy, it was found that two line wires had come in contact with each other at MP 269.27 (Pins 4 and 5). This failure caused voltage to be present on the "B" mech. Control coil.</p> <p>Corrective action was taken by separating the line wires, and making repairs to pin 5.</p>   |            |                   |                           |                      |               |                   |                    |                             |                          |
| <b>686</b>   | 12/27/2001 | IMRL              | APB                       |                      |               | MRL 265           | None               | Savanna, IL                 | N                        |
| <p>See attached [nothing attached].</p>  |            |                   |                           |                      |               |                   |                    |                             |                          |

| Report # | Date | Reporting Carrier | Block System<br>Narrative | Interlocking | Auto. Systems | Loco or Train No. | Device that Failed | Location | Collision or Derailment? |
|----------|------|-------------------|---------------------------|--------------|---------------|-------------------|--------------------|----------|--------------------------|
|----------|------|-------------------|---------------------------|--------------|---------------|-------------------|--------------------|----------|--------------------------|

|            |            |      |     |  |  |         |                  |                 |   |
|------------|------------|------|-----|--|--|---------|------------------|-----------------|---|
| <b>346</b> | 12/31/2001 | CSXT | CTC |  |  | NS 6688 | Insulated Joints | High Bridge, KY | N |
|------------|------------|------|-----|--|--|---------|------------------|-----------------|---|

On 12/31/01 at 2:10 a.m., Central Division Train #50VT830, lead unit NS 6688, proceeding southbound on Track #1 at High Bridge, KY, observed the home signal at High Bridge Control Point, MP-102.5, to display a CLEAR aspect for the train's movement. The signal should have displayed an APPROACH aspect due to the signal in advance, located on Track #1 at Control Point Brown MP-105.0, displaying STOP aspect. Train #50VT8 was aware of the dispatcher's plan for a meet with an opposing train at Brown and was able to stop the train short of the home signal at that location.

Investigation revealed that the track circuit on #1 track between High Bridge and Brown had the presence of foreign AC current on the rail. This allowed the track relay at High Bridge to intermittently pickup, and energize the decoder and associated relay pertaining to the CLEAR aspect. The presence of foreign current was attributed to two defective insulated joints on #1 track at High Bridge, one being shorted and one having low resistance.

As a corrective measure, both insulated joints were replaced. As an additional precaution, 60 cycle reactors were installed on the involved circuit at both High Bridge and Brown. The signal system was tested and returned to normal service at 4:15 p.m.

|            |            |    |     |  |  |         |                  |                 |   |
|------------|------------|----|-----|--|--|---------|------------------|-----------------|---|
| <b>316</b> | 12/31/2001 | NS | CTC |  |  | NS 6688 | Insulated Joints | High Bridge, KY | N |
|------------|------------|----|-----|--|--|---------|------------------|-----------------|---|

On 12/31/01 at 2:10 a.m., Central Division Train #50VT830, lead unit NS 6688, proceeding southbound on Track #1 at High Bridge, KY, observed the home signal at High Bridge Control Point, MP-102.5, to display a CLEAR aspect for the train's movement. The signal should have displayed an APPROACH aspect due to the signal in advance, located on Track #1 at Control Point Brown MP-105.0, displaying STOP aspect. Train #50VT8 was aware of the dispatcher's plan for a meet with an opposing train at Brown and was able to stop the train short of the home signal at that location.

Investigation revealed that the track circuit on #1 track between High Bridge and Brown had the presence of foreign AC current on the rail. This allowed the track relay at High Bridge to intermittently pickup, and energize the decoder and associated relay pertaining to the CLEAR aspect. The presence of foreign current was attributed to two defective insulated joints on #1 track at High Bridge, one being shorted and one having low resistance.

As a corrective measure, both insulated joints were replaced. As an additional precaution, 60 cycle reactors were installed on the involved circuit at both High Bridge and Brown. The signal system was tested and returned to normal service at 4:15 p.m.

No. of Reports Shown in this Listing: **82**