



# IronWood Technologies

Railroad Accident Reconstruction

## Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - State of Virginia

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
7	1/8/1995	CSXT	CTC			Train PO8308	None	Richmond, VA	N
<b>Cause</b>									
<b>Narrative</b>									
<p><b>Scenario Reenacted, Unable to Duplicate, No Defects Found</b></p> <p>On January 8, 1995, Train PO 8308 reported he has a SLOW CLEAR indication from #4 Track to #3 Track at Hillard Road for southbound movement. This signal was not requested at this time; however, northbound signal for #3 Track was, and was indicating.</p> <p>Signal personnel investigated the incident making all required operational tests. The incident could not be duplicated. It was determined that signal system was functioning as intended, and signal system was restored to service.</p>									
23	1/25/1995	NS	CTC			2540	Design	New Bohemia (Poe), VA	N
<b>Human Error - Signal Circuit Design Error, Inadequate Service-Testing</b>									
<p>Train No. 821, traveling westbound on the Eastbound Main reported a CLEAR signal indication at Milepost N-73.5 and then encountered a RESTRICTED indication at Milepost N-75.7.</p> <p>Signal personnel investigated and determined that the RESTRICTED signal was due to a line wire wrap at Milepost N-77.1 which shorted out the coils of the ZTPA relay at the N-75.7 signal. A design deficiency was responsible for fact that the singular failure of the ZTPA relay did not result in an HD pole change to the signal at Milepost N-73.5.</p> <p>The problem was corrected by circuit changes and by correcting the line wrap condition.</p>									

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24	1/29/1995	NS	AB			8575	Track Circuit	Ford, VA	N
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**Cause**  
Narrative

**Loss of Shunt - Possible Rust or Foreign Material on Rail**

Train No. 235 had lead unit 8575 fail with a wheel slip alarm. The train was stopped and the rest of the units were used to move the train to the adjacent track. Mechanical shop employees then attempted to move the stalled engine which was by that time alone in the block. The protecting signal was being observed by Trainmaster and the crew of No. 235, and they noticed that it was flopping between a STOP and CLEAR indication while the attempt was being made to move the engine.

Signal personnel were called to investigate, and by the time they arrived, engine 8575 had been moved to a spur track. It was found that the track relay, a 2 ohm, 4 point, DN-11, could be shunted with a 0.06 ohm shunt at either end and at the point where the engine was being operated at the time the false clear was observed. The track relay was tested and found to be in spec. The Mechanical forces were questioned about the operation and condition of engine 8575, and they said it had been leaking grease profusely to the rail. Due to this grease and the icy conditions, they had operated the sanders while attempting to move the engine. The condition was duplicated as closely as possible with the engine heavily sanding the rail and loss of shunt did occur. The cause was determined to be the grease/sand combination on the rails that resulted in the intermittent loss of shunt.

Once the rails were determined to be sufficiently clean of the grease, the signals were fully returned to service.

29	8/22/1995	NS	CTC			8883	Resistor	Brandy Station, VA	N
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**Failed Equipment or Device - Track Resistor**

Train No. 342, northbound, passed signal 60.8 which was displaying CLEAR. Conductor and Engineer Trainee looked back and observed that southward signal 60.9 displayed APPROACH while their train was still occupying the 60.9 track circuit.

Investigation revealed that the Trakode bleeder resistor, design value of 12.5 ohms, had a resistance of 96 ohms. This was a change in the value of the resistor itself rather than a connection. This high resistance value prevented the resistor from properly acting as a bleeder. With this resistor in place, the 60.9 signal would occasionally display APPROACH when a shunt was placed about 1000 feet south of the signal. Once duplicated, it was evident that the 60.9 track relay would pick up on the negative side with each pulse of the CP relay on the south track. The track currents were found to be normal. The false proceed was not easy to reproduce; several northbound trains were observed without recurrence. Several variable factors were obviously involved in reproducing this incident, presumably train speed, train shunt and track conditions.

A proper value resistor was installed to alleviate this situation.

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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33	11/15/1995	NS	CTC			3274	Poleline	Carbo, VA	N
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**Failed Equipment or Device - Object In/Through Slide Fence - Not Indicating**

At Approximately 7:05 PM, Train No. S90U715, engineer and conductor unknown, was traveling eastbound when they saw a tree that had fallen over the top of a slide fence and was blocking the track near MP CV-435. The train was stopped short of the tree. The train had been running on a signal to PROCEED, observed at Carterton MP CV-436.2.

The signal maintainer and a track crew were called to remove the tree and check the slide fence. The maintainer observed that the slide fence trigger near the point where the tree fell was tripped. Once the tree had been removed and the train had left the block, the block light showed CLEAR, even though the trigger was still tripped.

The trigger that was tripped is one of several spaced along a quarter mile long slide fence. The slide fence circuit runs along the top of the slide fence poles mounted on insulators. The single break slide fence circuit loops through each trigger and then returns to the slide fence relay via the signal poleline which was on the opposite side of the track from this fence. The falling tree had broke the line wire at the top of the fence and then hit the fence tripping the trigger. Both ends of the line wire were shorted to the slide fence, thereby bypassing the tripped trigger. Insulation had been stripped from the line wire as it jerked through the insulators before the tie wires broke. This allowed the line wire ends to make electrical continuity with the steel fence material.

Repairs were made to the line wire, the trigger was reset and tests were made on the signal system before returning it to service.



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96	7/11/1996	NS	CTC			7025, CR6028	Resistor	Deal, VA	N
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**Failed Equipment or Device - Track Resistor**

At approximately 11:00 PM, Train No. 203 passed the southward signal at milepost 187.5 on a CLEAR indication. Looking back they noticed that the northward signal was displaying APPROACH while their train was still occupying the north track circuit. At approximately 11:40 PM, train No. 211 noticed the same problem.

Investigation revealed that the Trakode bleeder resistor, design value of 12.5 ohms, had a resistance of 500 ohms. This high resistance value prevented the resistor from properly acting as a bleeder. With shunt on the 187.6 track, the 187.6 signal would display an approach indication. The high resistance was traced to a film that had developed in the bonds between the carbon and the metal tabs on the ends of the cartridge type resistor. The resistor ends were cleaned, and the resistance dropped to 14 ohms. A shunt on the 187.6 track then was found to cause the proper restricting indication.

142	1/13/1997	NS	CTC			N/A	Insulation	Front Royal, VA	N
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**Failed Equipment or Device - Aerial or Underground Cable, Shorted or Grounded (not due to vandalism or digging)**

At approximately 7:30 AM Asst. Track Supervisor was driving southbound on a road adjacent to the track when he noticed southward intermediate signal 63.9 displaying a CLEAR aspect. Being aware of the fact that northbound train 460V612 was in the block ahead around milepost H-68, he knew the signal should have been displaying RESTRICTING so he reported the incident to the dispatcher.

Signal personnel were called to investigate, and, upon arrival were able to duplicate the reported incident. Both the 63.9 and the 66.7 signals would display a CLEAR aspect when the next southward signal ahead was RESTRICTING and was not sending energy on the 667 BP line circuit. The problem was traced to a falsely energized 667 BP relay.

Signals in this area are AC operated. The false energy was found to be caused by two grounds south of milepost H66.7. BX110 was found to be going to ground through the insulation holding a contact in the slide fence circuit controller at milepost H67.8. The grounded BX110 was getting to the 667 BP line wire from a guy wire that was touching it at milepost H 67.4. The guy wire had been damaged at some previous time, allowing it to come in contact with the 667 BP line wire. Both grounds were eliminated, the signals tested and then put back in service.

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144	3/22/1997	NS	CTC			8516-8558	Wiring Error	Poe, VA	N
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**Human Error - Field Wiring Error, Inadequate Service Testing**

At approximately 12:10 AM, Train No. 184 eastbound received a CLEAR indication on #2 signal at Poe off the Beltline for movement onto Main No. 1. At the time, Train No. 676 was working the Car Lot track, having entered through the west end crossover off of Main No. 1. Though No. 676 was clear of the fouling circuit, both the mainline and inside hand throw switches were still in the reverse position, and since this was in the block immediately east of Poe, the #2 signal should not have cleared. The dispatcher had requested the route for Train No. 184 when the block light went off on Main No. 1 east of Poe, thinking that No. 676 had cleared up in the Car Lot track and restored his switches. The #2 signal went in time once No. 676's crew started to restore the switches. Train No. 184 did not move on the #2 CLEAR signal indication since they were aware of the reversed switches. The alertness of the involved train crews prevented an accident in this case.

Signal personnel were called to investigate and were able to duplicate the incident. They found that neither the mainline nor the inside switch were wired according to the print. The way they were wired caused the normal switch repeater relay for this crossover to be energized not only when both switches were normal, but also when both were lined reverse (for movement main to Car Lot track). When either switch was out of correspondence with the other, the relay dropped. This is why the condition was not detected during 236.103 tests.

The wiring errors were corrected, the signal system tested appropriately, and signals were returned to service. It is not known when or how this wiring error came about. Due to the "normal" nature of train operations involving this switch, it could have gone undetected for a long time.

149	12/30/1997	NS	CTC			8808-8677	Phantom Signal	Pearisburg	N
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**Phantom Signal - Due to Object in Foreground or Background**

At approximately 3:10 PM, Train No. 817 reported to the dispatcher that they had received an APPROACH DIVERGING westbound at signal 327.5, but when they arrived at the next signal, Control Point Pearisburg, the signal there was at STOP. The switch was lined normal (correct for their move), but the dispatcher had not yet requested a signal at Pearisburg for their move. Signal 327.5 should have been displaying APPROACH. No. 817 got stopped 35 cars lengths past the signal. No other trains were involved.

Signal personnel were called to investigate, but could not find a problem or duplicate the incident. The signal control on the single track approaching Pearisburg is by Electrocode 4. Signal 327.5 is a right hand ground mast colorlight. It has a three position head over a single green head which is illuminated only for APPROACH DIVERGING. All heads are phankill equipped. As the train crew said the bottom green appeared weak, a test was scheduled for the same time the following day for a possible phantom signal. That test did show a weak (whitish) phantom green on the normally dark head that was found to be caused by reflection from heavy snow on the ground in front of the signal. The sun at the time was about 40-degrees up and to the back of the signal in question. As the sun went down, the reflection got dimmed, disappearing altogether by 4:00 PM. The bottom head was turned to the field until the snow was gone.

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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438	2/28/1998	CSXT	CTC			Q21327	None	Potomac Run, Fredricksburg, VA	N
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**Human Error - Field Wiring Error, Inadequate Service Testing**

On February 28, 1998, Q21327 was traveling south on the RF&P subdivision on signal indication. The engineer called a CLEAR signal at the Potomac Run intermediate signal (633A). He noticed that the cab signal displayed APPROACH as the train passed signal 633A. The crew proceeded observing the most restrictive indication, the cab signal. The crew notified the dispatcher of the conflicting indications. The signals were removed from service.

Signal personnel were dispatched to investigate. The investigation revealed that the wrong relay had been altered during a consolidation of stand alone dragging equipment detectors to a combined equipment defect detector at Ross. The alteration to the DR relay vice the DEDPR relay resulted in the signal displaying a CLEAR aspect whenever code was received at the signal. The signal did display a Red aspect when no code was received at the signal.

The circuit was rewired to alter the DEDPR relay and the signal was returned to service after all operational checks were completed.

194	5/5/1998	NS	CTC			6626-8947	Arrestor	Carbo, VA	N
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**Failed Equipment or Device - Lightning Arrestors, Shorted**

Train No. J62U705, operating the two units as a pusher, had entered the CV main off the west leg of the wye at Carbo on signal indication. After he moved from unit 8947 to unit 6626 to change direction, the Engineer observed he had an APPROACH DIVERGING for his eastbound movement at Carbo. Shortly after he started his eastbound move, the CV dispatcher contacted him giving him permission to pass the next signal into the siding at Mill Creek and couple to train No. 572. When the Engineer told the Dispatcher that his last signal displayed APPROACH DIVERGING instead of APPROACH, the dispatcher had him stop his train and then called signal personnel to investigate.

Signal personnel arrived and had train No. J62U705 back west of the signal at Carbo. They then had the dispatcher set up the same scenario and were able to see the false proceed about five minutes later. Investigation revealed that there were three badly burned lightning arrestors in a pole mounted junction box at Carbo. Each of these arrestors was partially grounding the circuit to which it was attached. One was on the BP circuit which had 12 VDC on it at the time. The positive side of the BD relay for the eastward signal was also grounded by one of these arrestors and had 5.2 volts on it which was found to be coming from the BP circuit ground. The arrestors were replaced and the signal system tested for proper operation before being returned to service.

A recent lightning storm had likely caused the multiple ground condition by severely burning these three arrestors.

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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199	11/4/1998	NS	CTC			8929-6659	Human Error	Bandy, VA	N
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**Human Error - Field Wiring Error, Inadequate Service Testing**

At approximately 6:00 AM, train J69, a single unit helper, had traveled westbound on the Dry Fork Branch to the west end of Bandy, where he was to clear up in the siding. After lining himself into the siding and getting in the clear, the Engineer was in the process of tying his unit down when he heard the following train J60 call a CLEAR signal westward at the east end of Bandy. Since the engineer had not yet lined the handthrow mainline switch and derail back to normal, he reported the occurrence as a false proceed.

Signal personnel were called to investigate and were able to duplicate the problem. The normal switch detection relay for the handthrow switch is located at an ElectroLock cut section case about 700 feet west of the switch. Though this relay was properly down when the west end of Bandy switch was not normal, it was not affecting the electronic track code passing through the ElectroLock equipment. Investigation revealed that a handthrow switch adjacent to the ElectroLock had been removed from the track two days following the FRA 236.103 testing. When modifications were made for this removal, the maintainer erroneously cut out the circuit through the WP relay, too. Improper testing after disarrangement resulted in the wiring error going undetected at the time.

Corrections were made to the circuits, the signal system was properly tested and returned to normal service.

246	8/8/2000	CSXT	CTC			P052-07	Signal 6L	Fredericksburg, VA	N
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**Failed Equipment or Device - Electrical Ground (not in underground or aerial cable)**

On August 8, 2000 at approximately 0720, northbound L174 while moving on #3 track between Hamilton Interlocking and Fredericksburg Interlocking reported the Northbound Signal (6L) for #2 track at Fredericksburg displaying an APPROACH aspect with Train P308-08 ahead in the block. Signals were removed from service and Train Control personnel dispatched.

Investigation revealed a 4.4 mA ground which caused the 6LBPR relay to remain energized with the block occupied ahead. The cause of the ground was found to be deteriorated insulation on house wires which were contacting the metal wire chaseaway. All deteriorated house wires were replaced, signal checks were made with no exceptions, and the signals were returned to service.

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?	
			<b>Cause</b>							
			<b>Narrative</b>							
<b>263</b>	9/3/2000	NS	CTC			NS 6189, MRL 030	Case Wire	Glenvar, VA	N	
			<b>Failed Equipment or Device - Electrical Ground (not in underground or aerial cable)</b>							
			At 3:48 p.m., 9/3/00, train #185V402 was westbound on Track #1 east of Glenvar, VA when they observed the westbound signal L-102, Track #2, displaying an APPROACH aspect with train #755V403 in the block on Track #2 just west of the L-102 signal. L-102 should have been displaying a STOP aspect with the block occupied by #755V403. L-102 is a color position signal.							
			C&S personnel arrived and were to duplicate the scenario observed by the train crew of #185V402. Investigation found that the "H" relay was being falsely energized and held up by a 14 mil ground on the C-16 battery and a 4 mil ground on the B-16 battery. Several deteriorated case wires were replaced and the location was tested and returned to service at 7:40 a.m., September 4, 2000.							
			This location was last checked for grounds on June 27, 2000 with no exceptions taken.							
<b>300</b>	1/25/2001	CSXT	CTC		None		Switch Repeater	318-2 EB Int. Signal, Maidens, VA	N	
			<b>Human Error - Field Wiring Error, Inadequate Service Testing</b>							
			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.							
<b>304</b>	3/11/2001	CSXT	CTC		N773-05		Phantom Aspect	North Acca, Richmond, VA	N	
			<b>Phantom Signal - Due to Sun Angle</b>							
			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.							

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**Cause**  
Narrative

**313**    8/16/2001    NS    CTC          9369       Signal "HD" Relay       Vansant, VA       N

**Human Error - Field Wiring Error, Inadequate Service Testing**

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.

**314**    9/11/2001    NS    CTC          TR3529211       Phantom Signal       Leesville, VA       N

**Phantom Signal - Due to Object in Foreground or Background**

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.

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&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.

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.

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<b>348</b>	4/9/2002	CSXT	CTC			H75709	Aerial Cable	W.E. Gordonsville, Gordonsville, VA	N
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**Failed Equipment or Device - Aerial or Underground Cable, Shorted or Grounded (not due to vandalism or digging)**

At 18:25 on April 9, 2002 H75709 was operating westbound in the siding at the west end of Gordonsville. The switch was lined reverse and the westbound dwarf signal displayed a SLOW CLEAR (G) for the train to leave the siding. The train crew then observed a CLEAR (G/R) signal westbound on the main at the west end of Gordonsville. This signal should have been at STOP. H75709 stopped and reported the incident to the dispatcher. The signals were immediately removed from service and signal personnel were dispatched to the location. Upon arrival, Signal Supervisor and team verified this condition. Further investigation revealed foreign battery applied to the H-D line circuits causing the signal on the main to incorrectly indicate CLEAR. The line circuits were opened and the signals in both directions at the west end of Gordonsville were left out of service until repairs completed. Investigation revealed the aerial cable at the West End of Gordonsville junction box showed signs of moisture and corrosion. The affected aerial cable was removed from the junction box and the terminal strips were cleaned. Some of the conductors were cut off and the cable was reterminated. All conductors passed the megging test to ground and the cross megging test. The aerial cable was then restored to the signal system. Operational tests were performed with no exceptions taken. Signals were restored to service.

<b>399</b>	1/17/2003	NS	CTC			NS 9077	Phantom Aspect, Color Position Light Sign	Hurt, VA	N
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**Phantom Signal - Due to Unpainted Signal Hood or Background**

At 11:00 a.m. on January 17, 2003, train 3529217 with lead engine NS 9077 was eastbound on the Altavista District of the Virginia Division when the crew reported they observed an APPROACH DIVERGING aspect on signal 2026 at MP V 202.6 and received a STOP aspect at CP Hurt at MP V 200.2. The 2026 signal should display an APPROACH aspect with a STOP aspect at CP Hurt. This is electronic track territory with electronic interlockings and color position light signals. Cables were meggered, relays tested and grounds checked at both locations with no exceptions found. Logger cards were installed at both locations. The 2026 signal was returned to service on January 17, 2003.

On Saturday, January 18, 2003 the signal was observed at the same time as the eastbound move on the previous day from a test engine with C&S and Transportation personnel on board. Conditions were similar to that of the previous day and in approach of the 2026 signal there appeared to be two white lights on the bottom head of the signal in the 90 degree position. Further investigation found that the signal hoods over the bottom head lenses were faded on the top and sides of the hoods. The sun was to the right of the signal and sunlight was reflecting off of the signal heads giving the white light effect. The top head (45 degree yellow) was clearly visible. This could have been mistaken for an APPROACH DIVERGING aspect if the train crew did not watch the signal carefully.

The signal hoods in question were painted with a flat black paint and observed in like conditions on January 20, 2003 with no exceptions taken.

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<b>375</b>	2/5/2003	BNSF	CTC			UROOEVE105A	None Found	East North Dalles, VA	N
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**Scenario Reenacted, Unable to Duplicate, No Defects Found**

The train crew of UROOEVE105A reported that at around 14:30 Pacific Time on February 5, 2003, they observed a Flashing Yellow at the westbound intermediate signal 96.1 into a Red over Red at the East North Dalles control point. There was a train ZHCPTL903A on the siding at that time, and the switch was lined reverse. This was reported to the Signal Supervisor on 2/14/2003 at around 08:30. The dispatcher's log showed that a westbound signal was requested into the siding, but would not clear. There was also a train parked on the main at this time. The train crew reported it to the dispatcher, but when the Signal Maintainer heard the conversation, he told them he would take care of it. He told me he did not recognize the problem as an alleged false proceed, so he did not call for help.

Signal technician tested the signal at 96.1 on 2/14/2003, and took no exception to this location. Signal Supervisor, Signal Technician, and Signal Inspector tested East North Dalles control point, and could not duplicate the problem. There was a recorder at the intermediate signal, but too much time passed and the data had already been overwritten.

<b>434</b>	1/19/2004	CSXT	CTC			P05218	Design Error	West AY, Richmond, VA	N
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**Human Error - Signal Circuit Design Error, Inadequate Service-Testing**

At 06:57 on January 19, 2004, P05218 reported the northbound intermediate to West AY was showing CLEAR (Green) with a diverging route lined from #1 to #2 track at West AY. The signal at West AY was displaying a SLOW CLEAR (Red/Red/Green). The signals were removed from service and signal personnel were dispatched. Upon arrival at the location, signal personnel were able to duplicate the reported condition during testing. Initial investigation revealed a design error which allowed the Electrocode unit at West AY to send code to the intermediate signal (26W) allowing a more favorable signal to be displayed at the intermediate with the diverging route lined up. The proper signal aspect at the intermediate should have been APPROACH (Yellow). The design error was verified by office personnel. The circuit was redesigned and field personnel made the necessary changes. The signals were checked and returned to service.

No. of Reports Shown in this Listing: **23**