



***Federal Railroad Administration  
Office of Railroad Safety  
Accident and Analysis Branch***

***Accident Investigation Report  
HQ-2013-20***

***Kansas City Southern (KCS)  
Vivian, LA  
July 30, 2013***

***Note that 49 U.S.C. §20903 provides that no part of an accident or incident report, including this one, made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.***

**TRAIN SUMMARY**

|  |                            |  |
|--|----------------------------|--|
| 1. Name of Railroad Operating Train #1<br>Kansas City Southern Railway Company | 1a. Alphabetic Code<br>KCS | 1b. Railroad Accident/Incident No.<br>13073001 |
| 2. Name of Railroad Operating Train #2<br>Kansas City Southern Railway Company | 2a. Alphabetic Code<br>KCS | 2b. Railroad Accident/Incident No.<br>13073001 |

**GENERAL INFORMATION**

|   |   |   |
|---|---|---|
| 1. Name of Railroad or Other Entity Responsible for Track Maintenance<br>Kansas City Southern Railway Company | 1a. Alphabetic Code<br>KCS                                    | 1b. Railroad Accident/Incident No.<br>13073001            |
| 2. U.S. DOT Grade Crossing Identification Number  | 3. Date of Accident/Incident<br>7/30/2013                     | 4. Time of Accident/Incident<br>7:50 AM                   |
| 5. Type of Accident/Incident<br>Rear End Collision  |   |   |
| 6. Cars Carrying HAZMAT   | 7. HAZMAT Cars Damaged/Derailed                               | 8. Cars Releasing HAZMAT                                  |
|   |   | 9. People Evacuated                                       |
|   |   | 10. Subdivision<br>Midwest                                |
| 11. Nearest City/Town<br>Vivian   | 12. Milepost (to nearest tenth)<br>527                        | 13. State Abbr.<br>LA                                     |
|   |   | 14. County<br>CADDO                                       |
| 15. Temperature (F)<br>73 °F  | 16. Visibility<br>Day   | 17. Weather<br>Clear                                      |
|   |   | 18. Type of Track<br>Main                                 |
| 19. Track Name/Number<br>Main 500   | 20. FRA Track Class<br>Freight Trains-60, Passenger Trains-80 | 21. Annual Track Density (gross tons in millions)<br>18.7 |
|   |   | 22. Time Table Direction<br>South                         |

## OPERATING TRAIN #1

|  |  |                        |   |                                   |   |                                    |  |                               |            |                                    |       |   |            |
|--|--|------------------------|---|-----------------------------------|---|------------------------------------|--|-------------------------------|------------|------------------------------------|-------|---|------------|
| 1. Type of Equipment Consist:<br>Freight Train   |  |                        |   | 2. Was Equipment Attended?<br>Yes |   | 3. Train Number/Symbol<br>GKCMXS28 |  |                               |            |                                    |       |   |            |
| 4. Speed (recorded speed, if available)<br>R - Recorded<br>E - Estimated   |  | Code<br>R              | 5. Trailing Tons (gross excluding power units)<br>10218 |                                   | 6a. Remotely Controlled Locomotive?<br>0 = Not a remotely controlled operation<br>1 = Remote control portable transmitter<br>2 = Remote control tower operation<br>3 = Remote control portable transmitter - more than one remote control transmitter |                                    |  |                               | Code<br>0  |                                    |       |   |            |
| 6. Type of Territory<br>Signalization:<br>N/A<br>Method of Operation/Authority for Movement:<br>N/A<br>Supplemental/Adjunct Codes:<br>Q, N/A |  |                        |   |                                   |   |                                    |  |                               |            |                                    |       |   |            |
| 7. Principal Car/Unit  |  | a. Initial and Number  | b. Position in Train                                    | c. Loaded (yes/no)                | 8. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.   |                                    | Alcohol  | Drugs                         |            |                                    |       |   |            |
| (1) First Involved<br><i>(derailed, struck, etc.)</i>  |  | KCS4125                | 1   |                                   |   |                                    | 0  | 0                             |            |                                    |       |   |            |
| (2) Causing <i>(if mechanical, cause reported)</i>   |  | KCS4125                | 1   |                                   | 9. Was this consist transporting passengers?  |                                    | No   |                               |            |                                    |       |   |            |
| 10. Locomotive Units<br>(Exclude EMU, DMU, and Cab Car Locomotives.)   |  | a. Head End            | Mid Train   |                                   | Rear End  |                                    | 11. Cars<br>(Include EMU, DMU, and Cab Car Locomotives.) |                               | Loaded     |                                    | Empty |   | e. Caboose |
|  |  |                        | b. Manual   | c. Remote                         | d. Manual   | e. Remote                          | a. Freight   | b. Pass.                      | c. Freight | d. Pass.                           |       |   |            |
| (1) Total in Train   |  | 1                      | 0   | 0                                 | 0   | 1                                  | (1) Total in Equipment Consist                           | 74                            | 0          | 0                                  | 0     | 0 |            |
| (2) Total Derailed   |  | 1                      | 0   | 0                                 | 0   | 0                                  | (2) Total Derailed                                       | 1                             | 0          | 0                                  | 0     | 0 |            |
| 12. Equipment Damage This Consist<br>394233  |  |                        | 13. Track, Signal, Way & Structure Damage<br>0          |                                   |   |                                    |  |                               |            |                                    |       |   |            |
| 14. Primary Cause Code<br>H221 - Automatic block or interlocking signal displaying a stop indication - failure to comply.*                   |  |                        |   |                                   |   |                                    |  |                               |            |                                    |       |   |            |
| 15. Contributing Cause Code<br>H199 - Employee physical condition, other (Provide detailed description in narrative)                         |  |                        |   |                                   |   |                                    |  |                               |            |                                    |       |   |            |
| Number of Crew Members   |  |                        |   |                                   |   | Length of Time on Duty             |  |                               |            |                                    |       |   |            |
| 16. Engineers/Operators  |  | 17. Firemen            |   | 18. Conductors                    |   | 19. Brakemen                       |  | 20. Engineer/Operator         |            | 21. Conductor                      |       |   |            |
| 1  |  | 0                      |   | 1                                 |   | 0                                  |  | Hrs: 9 Mins: 50               |            | Hrs: 9 Mins: 50                    |       |   |            |
| Casualties to:   |  | 22. Railroad Employees |   | 23. Train Passengers              |   | 24. Others                         |  | 25. EOT Device?               |            | 26. Was EOT Device Properly Armed? |       |   |            |
| Fatal  |  | 0                      |   | 0                                 |   | 0                                  |  | Yes                           |            | Yes                                |       |   |            |
| Nonfatal   |  | 2                      |   | 0                                 |   | 0                                  |  | 27. Caboose Occupied by Crew? |            | N/A                                |       |   |            |
| 28. Latitude   |  |                        |   | 29. Longitude                     |   |                                    |  |                               |            |                                    |       |   |            |

## OPERATING TRAIN #2

|  |                |   |  |                                   |   |   |  |                               |              |                                    |            |
|--|----------------|---|--|-----------------------------------|---|---|--|-------------------------------|--------------|------------------------------------|------------|
| 1. Type of Equipment Consist:<br>Freight Train   |                |   |  | 2. Was Equipment Attended?<br>Yes |   | 3. Train Number/Symbol<br>HKCSH-27                          |  |                               |              |                                    |            |
| 4. Speed (recorded speed, if available)<br>R - Recorded<br>E - Estimated   |                | Code<br>R   | 5. Trailing Tons (gross excluding power units)<br>7394 |                                   | 6a. Remotely Controlled Locomotive?<br>0 = Not a remotely controlled operation<br>1 = Remote control portable transmitter<br>2 = Remote control tower operation<br>3 = Remote control portable transmitter - more than one remote control transmitter |   |  |                               | Code<br>0    |                                    |            |
| 6. Type of Territory<br>Signalization:<br>N/A<br>Method of Operation/Authority for Movement:<br>N/A<br>Supplemental/Adjunct Codes:<br>Q, N/A |                |   |  |                                   |   |   |  |                               |              |                                    |            |
| 7. Principal Car/Unit<br>(1) First Involved<br>(derailed, struck, etc.)  |                | a. Initial and Number<br>KCS 4588                   | b. Position in Train<br>102                            |                                   | c. Loaded (yes/no)  |   | 8. If railroad employee(s) tested for drug/<br>alcohol use, enter the number that were<br>positive in the appropriate box. |                               | Alcohol<br>0 | Drugs<br>0                         |            |
| (2) Causing (if mechanical,<br>cause reported)   |                | 0   | 0  |                                   |   |   | 9. Was this consist transporting passengers?   |                               | No           |                                    |            |
| 10. Locomotive Units<br>(Exclude EMU, DMU, and Cab<br>Car Locomotives.)  | a. Head<br>End | Mid Train   |  | Rear End                          |   | 11. Cars<br>(Include EMU, DMU, and Cab<br>Car Locomotives.) | Loaded   |                               | Empty        |                                    |            |
|  |                | b. Manual   | c. Remote  | d. Manual                         | e. Remote   |   | a. Freight   | b. Pass.                      | c. Freight   | d. Pass.                           | e. Caboose |
| (1) Total in Train   | 1              | 0   | 0  | 0                                 | 1   | (1) Total in Equipment<br>Consist                           | 47   | 0                             | 53           | 0                                  | 0          |
| (2) Total Derailed   | 0              | 0   | 0  | 0                                 | 1   | (2) Total Derailed  | 3  | 0                             | 0            | 0                                  | 0          |
| 12. Equipment Damage This Consist<br>944233  |                | 13. Track, Signal, Way & Structure Damage<br>157500 |  |                                   |   |   |  |                               |              |                                    |            |
| 14. Primary Cause Code<br>H221 - Automatic block or interlocking signal displaying a stop indication - failure to comply.*                   |                |   |  |                                   |   |   |  |                               |              |                                    |            |
| 15. Contributing Cause Code<br>H199 - Employee physical condition, other (Provide detailed description in narrative)                         |                |   |  |                                   |   |   |  |                               |              |                                    |            |
| Number of Crew Members   |                |   |  |                                   |   | Length of Time on Duty                                      |  |                               |              |                                    |            |
| 16. Engineers/Operators  |                | 17. Firemen   |  | 18. Conductors                    |   | 19. Brakemen  |  | 20. Engineer/Operator         |              | 21. Conductor                      |            |
| 1  |                | 0   |  | 1                                 |   | 0   |  | Hrs: 3 Mins: 50               |              | Hrs: 3 Mins: 50                    |            |
| Casualties to:   |                | 22. Railroad Employees                              |  | 23. Train Passengers              |   | 24. Others  |  | 25. EOT Device?               |              | 26. Was EOT Device Properly Armed? |            |
| Fatal  |                | 0   |  | 0                                 |   | 0   |  | Yes                           |              | Yes                                |            |
| Nonfatal   |                | 0   |  | 0                                 |   | 0   |  | 27. Caboose Occupied by Crew? |              | N/A                                |            |
| 28. Latitude   |                |   |  | 29. Longitude                     |   |   |  |                               |              |                                    |            |

## CROSSING INFORMATION

### Highway User Involved

### Rail Equipment Involved

|   |   |  |  |
|---|---|--|--|
| 1. Type   |   | 5. Equipment   |  |
| 2. Vehicle Speed ( <i>est. mph at impact</i> )  | 3. Direction ( <i>geographical</i> )                              | 6. Position of Car Unit in Train   |  |
| 4. Position of Involved Highway User  |   | 7. Circumstance  |  |
| 8a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?<br>N/A  |   | 8b. Was there a hazardous materials release by<br>N/A                                      |  |
| 8c. State here the name and quantity of the hazardous material released, if any.  |   |  |  |
| 9. Type of Crossing Warning<br>1. Gates      4. Wig wags      7. Crossbucks      10. Flagged by crew<br>2. Cantilever FLS      5. Hwy. traffic signals      8. Stop signs      11. Other ( <i>spec. in narr.</i> )<br>3. Standard FLS      6. Audible      9. Watchman      12. None<br>N/A |   | 10. Signaled Crossing Warning  | 11. Roadway Conditions<br>N/A                                      |
| 12. Location of Warning<br>N/A  |   | 13. Crossing Warning Interconnected with Highway Signals<br>N/A                            | 14. Crossing Illuminated by Street Lights or Special Lights<br>N/A |
| 15. Highway User's Age  | 16. Highway User's Gender   | 17. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train | 18. Highway User   |
| 19. Driver Passed Standing Highway Vehicle  |   | 20. View of Track Obscured by ( <i>primary obstruction</i> )                               |  |
| Casualties to:  | Killed  | Injured  | 21. Driver was   |
| 23. Highway-Rail Crossing Users   | 0   | 0  | 22. Was Driver in the Vehicle?                                     |
| 24. Highway Vehicle Property Damage ( <i>est. dollar damage</i> )   | 25. Total Number of Vehicle Occupants ( <i>including driver</i> ) |  |  |
| 26. Locomotive Auxiliary Lights?<br>N/A   |   | 27. Locomotive Auxiliary Lights Operational?<br>N/A  |  |
| 28. Locomotive Headlight Illuminated?<br>N/A  |   | 29. Locomotive Audible Warning Sounded?<br>N/A   |  |

**SYNOPSIS**

On Tuesday, July 30, 2013, at 7:50 am CST, Kansas City Southern Railroad (KCS) southbound loaded grain train, GKCMXS 28, operating with one head end locomotive, one rear end Distributed Power Unit (DPU), and 74 loaded rail cars struck the rear of a standing manifest train, KCS Train HKCSH 27 operating with one head end locomotives, one rear end (DPU) with 47 loaded and 53 empty rail cars at a recorded speed of 22 mph. The collision occurred near the north end of Shoreline Siding on the KCS Shreveport Subdivision at MP 527 on single main track. Movements on this part of the railroad are governed by Centralized Traffic Control territory, with maximum authorized speed of 55 MPH in the town of Vivian, LA.

Derailed equipment from both trains included: KCS Train HKCSH 27 derailed a distributed power locomotive and three cars; KCS Train GKCMX 28 derailed its lead locomotive and one car. Track, Signal and Equipment damages were estimated at \$1,495,966.00. There were two reported injuries to the crew members of the striking train. There was no release of hazardous materials.

At the time of the rear end collision, the weather was clear with a temperature of 73° F.

The probable cause of the accident was failure to comply with automatic block or interlocking signal displaying a stop indication (H221). A contributing factor was failing to comply with restricted speed or its equivalent not in connection with a block or interlocking signal(H605). FRA also concluded that fatigue was a contributing factor in this accident (H199).

**NARRATIVE**

**Circumstances Prior to the Accident**

**Striking Train Symbol KCS Train GKCMXS 28**

The crew of southbound KCS Train GKCMXS 28 included a Locomotive Engineer and a Conductor. The crew first went on duty at 10:00 pm, July 29, 2013 at Heavener, OK. This is their Away-From-Home Terminal. Both employees received more than the statutory off-duty period, 20 hours for the conductor and 14 hours for the engineer, prior to reporting for duty.

They were assigned to KCS Train GKCMXS 28, consisting of two locomotives in the lead, one Distributed Power Unit (DPU) at the rear of the train, 74 loaded Grain Hopper Cars, and 0 empty cars. At the time of the collision, Train 1 was 4601 feet long, and weighed 10,218 tons. The train was scheduled to travel to Shreveport, LA with no cars to pick up and one locomotive to drop off en route. KCS Train GKCMXS 28 dropped off locomotive KCS 3962 at Wade, AR.

KCS Train GKCMXS 28 received a Class 1 Initial Terminal Air Brake test, noted on the KCS' Form 540, on July 29 at 10:50 am in Kansas City, MO. The crew of KCS Train GKCMXS 28 received the Form 540 and departed Heavener, OK at 10:28 pm July 29. KCS Train GKCMXS 28 continued to Wade, AR where the crew set out the Locomotive that was behind the lead locomotive. The crew departed Wade at 4:27 am and continued southbound on the Shreveport Subdivision without any stops, or unusual occurrences, until they reached the collision area.

As KCS Train GKCMXS 28 approached the accident area, the Conductor, a qualified locomotive engineer, was seated in the locomotive engineer's seat at the controls on the west side of the locomotive. The called Locomotive Engineer was seated on the east side of the locomotive in the conductor's seat.

In this area of the railroad there is, in succession, a 3 degree curve to the right of about 1750 feet, followed by a tangent of about 1320 feet, then a 1 degree curve to the left of about 1000 feet to the point of impact. The descending grade in this area ranges from 0.00 to -0.60.

**Standing Train Symbol KCS Train HKCSH 27**

The crew of KCS Train HKCSH 27 included a Locomotive Engineer and a Conductor. They first went on duty at 4:00 am July 30, 2013 at Shreveport, LA. This was their Away-from-Home terminal. Both employees received more than the statutory off-duty period, approximately 12.5 hours each, prior to reporting for duty.

They were assigned to KCS Train HKCSH 27, consisting of one locomotive in the lead and one Distributed Power Unit (DPU) at the rear of the train. The train included 47 loads and 53 empty rail cars, weighed 7394 tons, and was 6167 feet long. The train was standing on the Main Track at approximately Mile Post 528 near the vicinity of the Industrial crossing, facing southward.

The railroad timetable directions of the trains are south. The geographical direction is also south. Timetable directions are used throughout this report. Standard Time is used throughout this report as well.

**The Accident**

**KCS Train GKCMXS 28**

KCS Train GKCMXS 28 traveling southbound had a Green aspect (proceed) indication at South Sandra Control point, MP 517.3, at approximately 7:20 am. The next signal encountered by GKCMXS 28 proceeding southbound was Intermediate Signal, MP 525.5 at approximately 7:30 am which displayed a Yellow aspect (indicating approach prepared to stop at next signal, trains exceeding 30mph immediately reduce to that speed.) This is in accordance with the General Code of Operating Rules (GCOR 9.1.8). The next signal encountered by KCS Train GKCMXS 28 proceeding southbound was Intermediate signal MP 527.5 which displayed a Red aspect (Stop indication). After passing this signal, the called Locomotive Engineer, sitting in the conductor's seat, placed the train in emergency. At 7:36 am event recorder data shows KCS Train GKCMXS 28 went into an emergency brake application, from the Conductor's Emergency Valve. At 7:36 am the event recorder data shows KCS Train GKCMXS 28 traveling at 22 mph striking the rear end of KCS Train HKCSH 27 and comes to a stop 27 feet later. The maximum authorized speed for trains complying with a Yellow aspect signal is 30 mph and prepared to stop at the next signal. The next signal for KCS Train GKCMXS 28 was a Red aspect signal calling for the train to stop as designated in the KCS General Code of Operating Rules (GCOR) in effect April 7, 2010.

The engineer on KCS Train GKCMXS 28, sitting in the conductor's seat, placed the train in emergency and then jumped off the train on the east side. He sustained possible chips to his hip bone and also to his L5 vertebrae, and various lacerations to his forehead and hands. Medical attention was provided at the emergency room at the North Caddo Medical Facility, Vivian, LA. He received prescriptions for muscle relaxers and pain relievers. He was then released and told to follow up with his personal doctors.

The conductor on KCS Train GKCMXS 28 stayed on the locomotive during impact and was treated for some contusions to his lower extremities and was given Celebrex, 200 mg, and instructed to follow up with his primary care physician. Both were released and were transported home by family members. Both injuries were reported to the FRA as required.

**KCS Train HKCSH 27**

The train was sitting on the Main Track at approximately MP 528 awaiting the local KCS Train HDQSH 29 working at industry ST&T, to clear. At the time of the impact, the crew of KCS Train HKCSH 27 was waiting to depart in a southbound direction.

There were no injuries to the crew on train HKCSH 27.

At 3:00 pm the KCS Mechanical Supervisor arrived at the accident site and began assessing the damage. The following were derailed on KCS Train GKCMXS 28:  
KCS 4125, derail, Lead Locomotive KCS Train GKCMXS 28  
KCS 287676, derailed, loaded grain car, 1st head car

The following were derailed and damaged on KCS Train HKCSH 27:  
KCS 4588, derailed, DPU  
KCST 172232, derailed, loaded, scrap boxes, box car, 100th head car  
KCST 152641, derailed, loaded, scrap paper boxes, box car, 99th head car  
KCS 154062, derailed, loaded, scrap paper boxes, box car, 98th head car  
AOK 13783, damaged, loaded, scrap paper boxes, box car, 97th head car

**Analysis and Conclusions**

**Analysis – Toxicology Test Results**

The KCS conducted FRA Post Accident testing on the crew or the strike train. KCS' initial total cost estimated of the accident was going to be between \$ 150,000 and \$ 1 million. Two hours later the estimated cost of the accident was to exceed \$ 1 million and the KCS FRA Post Accident tested the crew of the standing train. According to the KCS, the Dispatcher was not involved and was not tested.

**Conclusions**

Federal Railroad Administration Post-Accident Forensic Toxicology Result Reports indicate that the four employees tested had negative test results.

**Analysis- Locomotive Engineer Operating Performance**

#### Analysis- Locomotive Engineer Operating Performance

The lead operating locomotive, KCS 4125, on KCS Train GKCMXS 28 was equipped with a speed indicator and an event recorder, as required. The relevant event recorder data was downloaded by the trainmaster at the accident site and analyzed.

#### Conclusion

The called conductor performing duties as the locomotive engineer was not in compliance with applicable railroad operating and train handling requirements. KCS Train GKCMXS 28 was being operated at 30 mph approaching the accident area. The maximum authorized speed for a train approaching the collision site was 30 mph, slowing prepared to stop at the next signal, as designated in the current KCS GCOR April 7, 2010. The called engineer, sitting in the conductor's seat, placed KCS Train GKCMXS 28 into emergency brake application after failing to stop at the stop signal at MP 527.5. At the time of impact KCS Train GKCMXS 28 was being operated at 22 mph. Both speeds were recorded by the event recorder of the controlling locomotive.

#### Analysis – Employee Certification and Training

Relevant data in certification records, rules exams and operational efficiency tests were analyzed for the locomotive engineer and the conductor of KCS Train GKCMXS 28.

#### Conclusions

##### Locomotive Engineer KCS Train GKCMXS 28:

The Engineer for KCS Train GKCMXS 28 was certified as a Train Service Engineer and Conductor on July 1, 2011 which expires July 1, 2014. He has two Engineer Check Rides on July 19, 2011 and April 10, 2012.

On September 10, 2012/March 19, 2013 the engineer passed the following written exams and associated scores:

- Operating Rules 92% / 93%
- KCS STAR 100% / 100%
- Hazardous Materials 100% /100%
- Air Brake and Train handling 100% / 93%
- August Safety Focus Quiz No Score August 18,2012
- Restricted Speed Quiz No Score August 17,2012
- Electronic Device Quiz No Score / 90% September 10,2012 & March 9,2013

Rule checks were analyzed for the time period of July 1, 2012 to July 31, 2013. There were a total of 71 rule checks in this time period. There were two failures recorded: one for improper horn on Highway Grade Crossing and one for improper radio rules. The following is a list of pertinent rules, checked by railroad officials, related to safe operation of trains:

- TRN 18: STOP INDICATION- BLOCK SIGNAL (SURPRISE) June 22, 2013
- TRN 31: OBSERVE AND CALL SIGNALS AND CALLING ATT June 2, 2013
- TRN17 APPROACH SIGNAL (SURPRISE) 2013-06-02

The Engineer for KCS Train GKCMXS 28 has a Discipline History July 1, 2010 to July 31, 2013 of the following:

- Three missed call on January 18, October 6 and December 25, 2011
- Decertification September 15 to October 14, 2012 for occupying Main Track without authority.

##### Conductor KCS Train GKCMXS 28:

The Conductor for KCS Train GKCMXS 28 was certified as a Serving Engineer and Conductor on November 9, 2011 and recertified as a Train Service Engineer and Conductor on April 4, 2013 which expires April 4, 2016. He has one Engineer Check Ride on June 10, 2013.

On June 4, 2012 the conductor passed the following written exams and associated scores:

- Operating Rules 92%
- KCS STAR 100%
- Hazardous Materials 94%
- Air Brake and Train handling 94%
- August Safety Focus Quiz No Score August 17, 2012
- Restricted Speed Quiz No Score July 12, 2012
- Electronic Device Quiz No Score / 100% September 20, 2013 & January 8, 2013

Rule checks were analyzed for the time period of July 1, 2012 to July 31, 2013. There were a total of 155 rule checks in this time period with no failures. The following is a list of pertinent rules, checked by railroad officials, related to safe operation of trains:

- TRN 18: STOP INDICATION- BLOCK SIGNAL (SURPRISE) July 4, 2013
- TRN 18: STOP INDICATION- BLOCK SIGNAL (SURPRISE) June 24, 2013
- TRN20: STOP INDICATION- AUTOMATIC INTERLOCKING June 24, 2013
- TRN 31: OBSERVE AND CALL SIGNALS AND CALLING ATT June 2, 2013
- TRN12: COMPLIANCE WITH RESTRICTED SPEED (SURPRISE) June 22 and June 10, 2013

The Conductor for had no history of Discipline between 07-01-2010 to 07-31-2013.

#### Conclusion:

The KCS properly monitored their employees in the field and operational testing was not an issue. During times of Operational testing the Locomotive Engineer and Conductor were in compliance with all applicable railroad operating and train handling requirements.

#### Analysis – Fatigue

FRA obtained fatigue-related information for the 10 day period preceding this accident/ incident, including the 10 day work history for the employees involved.

#### Conclusions

Upon analysis of that information FRA concluded that fatigue was probable for one or more of the employees, and the employee or employees may have been working at a diminished level of safety (effectiveness) due to mental and/or physical attributes associated with fatigue which may have contributed to the accident/incident.

#### Analysis – Cell Phone Use

#### Conclusions

There is no evidence that personal cells phones were used on a moving train or any other circumstances where prohibited by FRA regulations.

#### Analysis- Signals

The signals are governed under § 236.23 Aspects and Indications. The last three signals encountered were as follows:

The KCS Train GKCMXS 28 traveling southbound had a Green aspect (proceed) indication at South Sandra Controlled point – MP 517.3

The next signal encountered by KCS Train GKCMXS 28 proceeding southbound was Intermediate signal – MP. 525.5 which displayed a Yellow aspect (indicates approach prepared to stop at next signal, trains exceeding 30mph immediately reduce to that speed. (GCOR 9.1.8)



prepared to stop at next signal, trains exceeding 30mph immediately reduce to that speed. (GCOR 9.1.8)

The next signal encountered by KCS Train GKCMXS 28 proceeding southbound was Intermediate signal – MP. 527.5 which displayed a Red aspect (Stop indication)

On July 30, 2013, KCS Signal Department performed vital tests on the following Control Points and Signal Equipment involved/examined/tested in the incident:

SOUTH SANDRA CONTROLLED POINT – MP. 517.3

HOT JOURNAL/WHEEL DETECTOR – MP. 523.3

INTERMEDIATE SIGNAL – MP. 525.5/6

INTERMEDIATE SIGNAL – MP. 527.5/6

NORTH SHORELINE CONTROLLED POINT – MP. 529.8

Pursuant to this investigation, FRA requested and reviewed all pertinent signal data documentation and records of tests both prior to and after the incident.

KCS Signal Maintenance personnel, under the direction of KCS Signal Supervision, performed all operational and FRA tests for all of the above listed signal locations.

FRA took no exception to the data and tests records provided, or functionality and operation of the signal system in relation to this incident.

#### Conclusions

Control Points and Signal Equipment were working as intended.

#### Overall Conclusions

Overall Conclusion: The railroad was in compliance with KCS and FRA standards. The signal system functioned properly. The data reviewed from the event recorder and from the interview process revealed that the called Conductor performing duties as the engineer of KCS Train GKCMXS 28 was not in compliance with applicable railroad operating and train handling requirements.

#### Probable Cause and Contributing Factors:

The Federal Railroad Administration's investigation determined the probable cause of the accident was failure to comply with automatic block or interlocking signal displaying a stop indication (H221). A contributing factor was failing to comply with restricted speed or its equivalent not in connection with a block or interlocking signal(H605). FRA also concluded that fatigue was a contributing factor in this accident (H199).