

Federal Railroad Administration Office of Railroad Safety Accident and Analysis Branch

Accident Investigation Report HQ-2013-14

CSX Transportation (CSX) Rosedale, MD May 28, 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.

U.S. Department of Transportation Federal Railroad Administration	FRA FA	CTU	JAL RAILRO	AD	ACCIDEN	T RE	POI	RT FRAF	File #HQ-2013-14			
TRAIN SUMMARY												
1. Name of Railroad Operating Train #1					Iphabetic Code	1	ncident No.					
CSX Transportation						000116641						
			GENERAL IN	FOI	RMATION							
1. Name of Railroad or Other F		la. Alphabetic Code	b. Railroad Accident/Incident No.			nt/Incident No.						
CSX Transportation			CSX		000116641							
2. U.S. DOT Grade Crossing Io		3. Date of Accident/l	Incident	4. Time of Accident/Incident								
140833j			5/28/2013	2:00 PM								
5. Type of Accident/Incident												
Hwy-Rail Crossing												
6. Cars Carrying		8. Cars Releasing		9. People			10. Subdivision					
HAZMAT 4	Damaged/Derailed	3	3 HAZMAT		Evacuated	70		Baltimore				
11. Nearest City/Town	ilepost (to nearest tenth)	13.	State Abbr.	14. Coun	ty							
Rosedale	M	ID	BALTIMORE									
15. Temperature (F)	16. Visibility		17. Weather		18		of Trac	ek				
87 °F	Day		Cloudy			Main						
19. Track Name/Number 20. FRA Track Class						21. Annu		-	22. Time Table Direction			
Main 1 / Westbound Freight Trains-80, Passenger Trains						(gross) 36.2	tons in r	nillions)	West			

U.S. Department of Trans Federal Railroad Admini		FR	4 F	ACT	'UAL]	RAIL	ROA	D A	CCID	ENT I	REPO	RT F	RA File #H	IQ-2013-14	ļ	
					0	PERA	TING	TRA	IN #1							
Type of Equipment Con	ısist:				<u> </u>	LIM	11110	11111		2. W	as Equipmen	nt Attended?	3. Train	Number/Syr	nbol	
Freight Train								Yes				O409-27				
Speed (recorded speed, :	if available)	Code	5 Tr	ailing T	ons (gross e	xluding n	ower uni	ts) 6a. R	emotely Con				Q.03		Code	
R - Recorded E - Estimated	48 MI		5. Trailing Tons (gross exluding power units) 2890					0 = 1 = 2 =	6a. Remotely Controlled Locomotive? 0 = Not a remotely controlled operation 1 = Remote control portable transmitter 2 = Remote control tower operation 3 = Remote control portable transmitter - more than one remote control transmitter							
6. Type of Territory															•	
Signalization:																
N/A																
Method of Operation/Autl	hority for Mov	vement.														
N/A	101119 101 1110	· cilicita														
Supplemental/Adjunct Co	ndes:															
A, N/A	Acs.															
A, 14/A																
7. Principal Car/Unit	Principal Car/Unit a. Initial and Number b. Position in Train c. Loaded (yes/no) 8. If railroad employee(s) tested for drug/								or drug/	Alcohol Drugs		Drugs				
(1) First Involved	,	alcohol use, enter the number tha														
(derailed, struck, etc. (2) Causing (if mechan cause reported)		0			0			positive in the appropriate box. 9. Was this consist transporting passent							No	
10. Locomotive Units	a. Hea	ad 1	Mid Trai	d Train Rear En		End	nd 11. Cars				Loaded		pty			
(Exclude EMU, DMU, and Car Locomotives.)	Cab	1		Remote	d. Manual	e. Remote			MU, DMU, and Cab		reight b. Pass. c. F		Freight d. Pass.		e. Caboose	
(1) Total in Train	2	0. Man	uai C.	0	0	0		otal in Eq		14	0.1433.	31	0		0	
		- 0		U	0	0		onsist		14	0	31	0		<u> </u>	
(2) Total Derailed	0	0		0	0	0	(2) T	otal Derai	led	6	0	9	0		0	
12. Equipment Damage Th	is Consist		13. Tra	ack, Sign	al, Way & St	ructure Dar	nage									
5040′	75	ı			1000000	1										
14. Primary Cause Code																
M304 - Highway user	cited for vi	olation of h	ighway	-rail gra	ide crossing	traffic lav	ws									
15. Contributing Cause Co	ode															
Number of Crew Members Length of Time on Duty																
16. Engineers/Operators																
1		0			1		0	H	Hrs: 6 Mins: 0 Hrs: 6					Mins: 0		
Casualties to:	22. Railroa	ad Employees	3	23. Train	Passengers	24	1. Others	25. EOT Device? 26. Was EOT Device Properly Armed?						ned?		
Ents1		^	-		^		^	\dashv			Yes				Yes	
Fatal 0					0 0			27	27. Caboose Occupied by Crew?							

1

No

Nonfatal

28. Latitude

0

0

29. Longitude

U.S. Department of Transportation Federal Railroad Administration	FRA FACT	TUAL R	AILRO	AD ACCID	ENT	REPC	RT	FRA File #HQ-2013-14	
		CROS	SING IN	FORMATIO	N				
Hi	ighway User Involved		Rail Equipment Involved						
1. Type		5. Equipment							
2. Vehicle Speed (est. mph at impact)	3. Direction (geograp	phical)		6. Position of Car Unit in Train					
4. Position of Involved Highway User			7. Circumstance						
8a. Was the highway user and/or rail equ in the impact transporting hazardo		8b. Was there a hazardous materials release by							
Rail Equipment		Rail Equipment							
8c. State here the name and quantity of the (1)Sodium Chlorate 218,279 and (2)Sodium Chlorate 218,279 and (3)Sodium Chlor		ed, if any.							
9. Type of Crossing Warning		10. Signaled Crossing Warning				y Conditions			
1. Gates 4. Wig wags 2. Cantilever FLS 5. Hwy. traffic sig 3. Standard FLS 6. Audible	ged by crew er <i>(spec. in narr.)</i> e					N/A			
N/A, 7		T							
12. Location of Warning Both Sides	/arning Interconnected with Highway Signals 1			14. Crossing Illuminated by Street Lights or Special Lights No					
15. Highway User's Age 16. H		Went Behind or was Struck by S	r in Front of Train Second Train	18. High	iway User				
19. Driver Passed Standing Highway Ve	hicle 20. View of	Track Obscured	by (primary o	obstruction)	1				

21. Driver was

24. Highway Vehicle Property Damage (est. dollar damage)

Yes

27. Locomotive Auxiliary Lights Operational?

29. Locomotive Audible Warning Sounded?

Injured

1

Casualties to:

23. Highway-Rail Crossing Users

26. Locomotive Auxiliary Lights?

28. Locomotive Headlight Illuminated?

Yes

Yes

Killed

0

22. Was Driver in the Vehicle?

25. Total Number of Vehicle Occupants (including driver)

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HO-2013-14

SYNOPSIS

On May 28, 2013, at approximately 2:00 PM(EST) in Rosedale, MD (A suburb of Baltimore, MD), a Westbound CSX Transportation (CSX) Train Q409-27, containing fourteen loaded and thirty one empty cars for a total of forty five freight cars, was traveling on Main - 1 at approximately forty eight miles per hour (mph) when a containerized trash truck appeared on their south side as they approached a private crossing. The truck was struck on its right rear axle by the lead locomotive CSX -5310 and was then deflected around to the north side of the crossing. As a result of this collision, the train went into emergency seconds after impact and the first fifteen of its forty five cars derailed. This derailment resulted in a pile-up of those fifteen cars and created an ensuing fire within the wreckage. The fire within this wreckage caused an eventual explosion from a pressure buildup of one of the cars carrying hazardous materials. The Baltimore County Fire Chief, who was the assigned incident commander, instituted mandatory evacuations that involved approximately seventy residents and lasted approximately ten hours. Within this one thousand yard evacuation, the power was shut off for all residences and businesses in this evacuation area.

The fire was contained by 6:00 PM on May 28, 2013 and there were no other injuries reported to the train crew as a result of this derailment. The remaining thirty cars of this train that remained upright were removed and taken to a local siding. The Baltimore County Fire Chief relinquished his post as the incident commander to CSX once the fire was extinguished.

At the time of this accident it was daylight with a slight overcast with light winds blowing from the east. The temperature was approximately eighty seven degrees Fahrenheit. The truck involved was totally destroyed and the driver suffered some extensive injuries, but will recover. The crossing is listed in the CSX Timetable as a private crossing.

The accident was caused by a failure of the motor vehicle driver to yield to the train. According to the Baltimore County Police Department, the driver was charged with the following citations:

(Citation # 04Y0EH9 – TA 21-701a, Driver Failure to stop at a RR Grade Crossing) (Citation # 04Y0EH9 – TA 21-703b, Driver Failure to stop Vehicle 15 to 50 feet from nearest railroad crossing)

(Citation # 0500EH9- TA 21-703c, Driver Failure to stop, look and listen at RR crossing)
(Citation # 0510EH9- TA 21-703c, Driver Failure to stop, look and listen at RR crossing)
(Citation # 0510EH9- TA 21-703d, Driver proceeding across a railroad crossing when unsafe)
(Citation # 0520EH9- TA 21-703.1, Driver of a commercial vehicle approaching railroad crossing failing to slow down, stop and negotiate when clear)

(Citation # 0530EH9-TA22-412.3b, Operator not Restrained by Seatbelt)

(Citation # 0540EH9-TA21-901.1b, Negligent Driving)

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HO-2013-14

NARRATIVE

Circumstances Prior to the Accident

The train crew of CSX Train Q 409-27 consisted of a locomotive engineer and conductor. They first went on duty at the CSX Philadelphia Eastside freight yard at 8:05 AM EST, on May 28, 2013. Both crew members received more than their statutory off-duty period prior for reporting for duty.

Their assigned freight train consisted of two locomotives, fourteen loaded, and thirty one empty freight cars of mixed freight for a total of forty five cars. The train was 2909 feet long and weighed 2890 tons. The train received its initial terminal brake test at Philadelphia and the train crew was taxied over to Darby, PA approximately five miles away from the CSX Eastside yard to inspect and officially receive the train. The train departed at 9:54 AM. There were no additional cars to be picked up or cars to be set out en route to their destination of Baltimore, MD.

As CSX train Q 409-27 approached the accident area, the locomotive engineer was seated at the controls of the north side of the lead locomotive. The conductor was seated on the south side of the lead locomotive. The train was traveling west on Main # 1 at forty eight mph as they approached the accident area.

The track geometry approaching this area of the railroad was a .7 degree downgrade of elevation and a .30 degree right hand curve. The crossing is asphalt and practically level and perpendicular to the track.

The railroad timetable direction is identified as West. The geographical direction is also west. Timetable direction and geographical are identified as the same direction and will be referred to as West throughout this report.

The Accident

At 2:00 PM on May 28, 2013, a CSX Train Q409-27 approached a private crossing on a clear signal at forty eight mph as recorded through a locomotive download. Within approximately two hundred feet of the crossing the vehicle appeared on the south side of the approaching train. The maximum authorized speed for this area is fifty mph as per the Baltimore Division Timetable. The vehicle, a 2003 Mack truck, equipped with a 20 ft. roll-off type container was struck in the rear axle area by lead locomotive CSX 5310 and was spun off to the north side of the train. The truck came to rest approximately one hundred twenty seven feet west of the crossing. This crossing is listed in the CSX Timetable as a private crossing, but is included in the DOT inventory as DOT 140833J.

As a result of this collision, the train went into emergency seconds after impact and the first fifteen of its forty five cars derailed. This derailment resulted in a pile-up of those fifteen cars and created an ensuing fire within the wreckage. The train crew managed to keep the locomotives out of the derailment and contact their dispatcher. After they came to a stop, the engineer dismounted the locomotive and made an inspection to check and be sure the locomotives were on the rail and for any damages to the fuel tanks. During this time the conductor contacted the dispatcher with an emergency notification. After the engineer re-boarded the locomotives, they were giving instructions to move westward to Bay-view yard one additional mile away.

Approximately five minutes and thirty two seconds after impacting the truck, the fire within the wreckage was strong enough to affect one of the three derailed hazardous materials cars and cause a mass explosion. A second blast from this car occurred at five minutes and forty one seconds after the collision. This explosion damaged warehouses adjacent to the tracks and reportedly blew out windows in the surrounding neighborhoods.

Upon impact with the dump truck, rail cars one through fifteen derailed. Of the fifteen cars derailed, nine were empties and 6 were loads. It is believed the cars in positions eight and nine were on fire. Both Main 1 and Main 2 tracks were blocked. Emergency responders were on the scene within twenty minutes of the initial impact. The responders in coordination with CSX had a continuous spray of water on the burning cars for the next four hours.

A second set of emergency personnel arrived from Rosedale, MD at the scene shortly thereafter. The Fire Company from Rosedale attended to the truck driver and removed him from the wrecked truck and took him to a local hospital for treatment. All of the utilities were shut off to the buildings on Biddle Street. Biddle Street was the street adjacent to and parallel to the CSX Main 1 (westbound) where this incident occurred and the train came to rest. Baltimore County Fire and Emergency Management Services (EMS) conducted a door to door 1000 yard evacuation of the area that consisted of approximately seventy people. Maryland Route 40 was closed to traffic in the local area.

The fire was contained by 6:00 PM on May 28, 2013 and there were no other injuries reported as a result of this derailment. The remaining thirty cars of this train that remained upright were removed and taken to a local siding. Maryland Route 40 was re – opened at 8:00 pm on May 29, 2013.

The National Transportation Safety Board (NTSB) arrived on site and requested that CSX halt their clean-up of the site until the next morning, May 29, 2013 so they could have full access to the site to conduct their investigation and make field observations of the wreckage.

On May 29, 2013, the NTSB and the FRA took reviewed the wreck site to evaluate the condition of the cars involved, and their resting place to help determine what happened.

The explosion was caused by fire and debris generated from sparks during the initial stages of the pile of cars. The vegetation south of the rail line and adjacent to the pile up was burned and trees were defoliated and some blown over, extending in a circular pattern approximately one hundred twenty feet south of the track from the area of the explosion. This burned area was adjacent to the seventh car in this train consist, UNPX 128076, a covered hopper type car loaded with Sodium Chlorate. This car was heated to an extreme level and failed catastrophically in the post-accident fire and explosion. Sections of this covered hopper were found all over the wreckage. The two largest fragments of aluminum shell material from the side and top of the rail car were located in a wooded area between ninety and one hundred twenty feet south of the explosion site. These pieces showed evidence of internal overpressure with outward deformation and curling of edges. Fracture surfaces were irregular with little thermal damage.

The content of UNPX 128076 was listed as a Class 5.1 (oxidizer) type material with an identification number of UN 1495. It is a Packing Group II material and is authorized to be loaded in a Bulk package that is considered sift proof. A Sift proof package is a defined as a package impermeable to dry contents, including fine solid material produced during transportation or basically will not leak dry fine solid material in transportation. The actual contents of the car were found streaming from the wreckage due to the excessive heat generated during the fire.

This made the clean-up difficult since this product was organic in its chemical makeup and when dried out can stick to surfaces and harden. This harden material can reignite if rubbed against a friction surface.

The next hazardous materials car involved was tank car GATX 61416. This tank car was listed in position number eight in the train consist and was described as, UN 1778, Residue Last Contained, Fluorosilicic Acid, 8, PG II . The specification DOT-111A100W5 tank car was a rubber lined tank car that was especially built for acid service. All of the exterior unloading/loading top fittings were rubber lined.

The car was fitted with one safety vent with a start-to-discharge pressure of 100 psig. The estimated light weight of the car was 58,200 pounds and with the excessive heat that this tank car was under at the time of the fire, the remaining product was emitted thorough the Safety Vent / Rupture Disc into the atmosphere during the fire. All of the rubber on the exterior fittings was burned and as a result of this tank car is out of its DOT Specifications. A One-Time Movement Authority (OTMA) will be required for this tank to be transferred to a shop for repairs.

The final of the three cars containing hazardous materials involved in this accident was tank car HOKX 111773. This tank car was listed in position number fifteen in the train consist and was described as being loaded with UN 1824, Sodium Hydroxide Solution, 8, PG II, RQ. This tank car contained was a specification DOT-111A100W1 with both top and bottom fittings equipped with gaskets. This tank car was derailed but suffered no burns or any other heat related damage from the fire. It had mechanical damages from the derailment but was re-railed on May 29th and forwarded to a nearby rail siding for a more thorough mechanical inspection away from the incident clean-up site.

The clean-up began on May 29, 2013 and continued until June 1, 2013 when their Main 2-Eastbound traffic resumed. On June 3, 2013 CSX placed their Main 1- Westbound traffic back in service. A slow order remained on both Main 1 and Main 2 for five additional days to June 8, 2013 until all of the wreckage and environmental cleanup had concluded.

concluded.

Highway vehicle-

The vehicle involved was a 2003 Mack equipped with a twenty foot roll off dumpster body that was loaded with trash. The driver was employed by a local trash pick-up service and was traveling on the adjacent service road paralleling the tracks at approximately ten mph when he attempted to transverse the crossing. The accident report filed by the Baltimore County police verified that the truck was traveling at approximately ten mph when the accident occurred. The officer based his estimate on a calculation of the distance of the skid marks after impact. The Baltimore County Police report also stated that the driver had made no attempt to stop, was not wearing his seat belt, and was talking on his cell phone via a blue tooth ear piece as he drove over the crossing and into the path of this CSX train.

The train struck the 2003 Mack truck in the rear axle area and was spun off to the north side of the train. The cab of the truck came to rest approximately one hundred twenty seven feet west of the crossing. The box tail gate & section came to rest two hundred forty two feet west of the crossing and the body center mass came to rest one hundred forty one feet west of the crossing. The locomotive consist separated from the train as a result of the accident and was moved away from the scene as a result of the fire and explosion. The train crew was given additional instructions to move westward to Bay-view yard approximately one mile away. No train crew members were injured during this collision.

Local police arrived on the scene to access the damage and were met by witnesses to the recent crash and explosions. The witnesses were from local businesses and directed officers and arriving emergency personnel from the Baltimore County Fire Department to help attend to the injuries that the truck driver received as a result of this accident. The issuing fire caused two more alarms of Fire Departments and included a Fire and Rescue Truck from Martins Airport.

CSX forwarded their hazardous materials field managers and local transportation officials to this site for clean-up, assistance to responders and remediation of the wreck site. The train crew was relieved of their duties within their twelve hour duty time.

Analysis and Conclusions

Analysis - Fatigue - FRA obtained fatigue related information, including a ten day work history for both the conductor and engineer of this train crew.

Conclusion – FRA concluded that fatigue was not probable for the either the conductor or engineer and did not contribute to the cause of this accident either directly or indirectly.

Analysis - Engineer Locomotive Operations and Train Handling - A review of both the locomotive download and statements taken from the engineer indicated that the engineer was in full compliance with his operating rules and federal regulations. The locomotive was given its daily inspection and no exceptions were taken. Conclusions- Engineer performance was not a contributing factor.

Analysis - Conductor Performance - A review of the statements given and a review of his radio transmissions given to the dispatcher during this collision indicated that the conductor was in full compliance with his operating rules and federal regulations.

Conclusions - Conductor performance was not a contributing factor.

Analysis - Mechanical - All of the cars that were involved in this collision that were not derailed were removed from the collision scene and inspected at the next serving yard and a nearby siding. No obvious exceptions were taken with any of the cars that were removed from the accident scene on their own wheels that would indicate that a mechanical issue was involved.

The locomotive was inspected against the daily inspection given by the engineer and all safety systems operated as intended. All of the cars involved were inspected by qualified personnel prior to departure from the collision site.

Conclusion - No mechanical issues were a contributing factor in this collision

Analysis – Signal - The method of operation in this area is by signal indication of a traffic control system (TCS). CSX Train Q40927 was traveling west at approximately 48 miles per hour when the accident occurred. The accident occurred between Control Points (CPs) Rossville and Bay view. The signal system in this area consists of Harmon Electro Code 4 Plus and color position light signals.

The accident occurred when a CSX train traveling west on No. 1 Track struck a truck at the 68th Street Crossing (defined by CSX as Private and the City of Rosedale as a public highway-rail grade crossing) which in turn caused the train to derail. The crossing has no active warning system and is only equipped with cross-bucks.

After determining that signal equipment did not directly cause the accident, an inspection was performed at Intermediate Location Rosedale. This was the last signal the train passed prior to the accident and is located at BAK 87.1. The inspection consisted of ensuring the signal location was secured, visually inspecting all signal equipment, testing for grounds, and testing all signal aspects for the 871-1 signal (The No. 1 Track westbound signal). The most recent twelve months of signal test records were also reviewed. The signal was found to be working as intended. Downloads were reviewed from the dispatchers event log and from the data recorder of the second crossing east of the accident site. The crossing immediately east of the accident site is not equipped with a data recorder.

According to the dispatcher's event log, at 13:59:09, Train Q40927 occupied the track segment where the accident occurred (a track segment directly correlates to the track indication displayed on the dispatchers screen and may include more than one track circuit). At 14:00:06, the derailing train broke the adjacent track (No. 2 Track) causing that track circuit to drop and indicate track occupancy. According to the download from Todd's Lane, Train Q40927 occupied the crossing's island circuit at 13:57:46 (adjusted for a twenty six second error) and was traveling at approximately forty three MPH. Todd's Lane Crossing is located at milepost BAK 86.11.

A defect was noted for incorrect nomenclature on track wire tags at intermediate location Rosedale. This defect was non-contributory to the accident and all signal equipment inspected was found to be working as intended.

Conclusion - All signal aspects were displaying properly and no signal systems were a contributing factor for this collision.

Analysis – Track – Approximately one half mile of the track on Main 1 East (approaching side) of the crossing was walked and measured for any deformities. No exceptions were taken with track gage, cross tie condition, fasteners or cross level.

Conclusion - The track was inspected and no noncompliance was found. No track conditions were a contributing factor for this collision.

Analysis - Hazardous Materials- Of the fifteen rail cars involved in the derailment, three cars contained hazardous materials. Other rail cars involved in the derailment were transporting non-DOT regulated commodities, or were empty.

Car number seven in the consist was a closed hopper car loaded with 218,279 pounds of Sodium Chlorate, hazard class 5.1, UN 1495, Packing Group II. This hopper car was destroyed in the accident, releasing the entire contents of the car. The Sodium Chlorate crystal was shipped by Akzo Nobel Pulp and Performance Chemicals in Quebec, Canada on May 7, 2013. The main commercial use is for bleaching of paper and pulp. The material safety data sheet describes the material as an inorganic white to yellow crystalline solid that is a strong oxidizing agent. Crystals are similar in appearance to table salt. Sodium Chlorate is odorless and is highly soluble in water. The material accelerates the combustion of organic materials (wood, paper, oil, and clothing) to increase the intensity of the fire. In a fire, the material melts, and then decomposes at 265 °C/510 °F and releases oxygen. Sodium Chlorate reacts explosively, either as a solid or as a liquid, with all organic matter and some metals.

Terephthalic Acid

Cars in positions nine, ten, eleven, and twelve in the consist were each loaded with about 198,680 pounds of Terephthalic Acid, a non-DOT regulated commodity, shipped by Cepsa Quimica Montreal LP, of Montreal, Quebec. Three of these cars were involved in the post-accident fire.

Terephthalic Acid is a precursor in the production of polyethylene terephthalate (PET), a thermoplastic polymer resin that is used to produce such things as beverage, food, and liquid containers. Terephthalic Acid is a carboxylic acid that can be oxidized by strong oxidizing agents and generate heat. The material is considered stable to mechanical impact. Excessive dust generated from this material may form explosive mixtures in air. This material can burn at high temperatures and during a fire, may emit irritating and

impact. Excessive dust generated from this material may form explosive mixtures in air. This material can burn at high temperatures and during a fire, may emit irritating and toxic gasses and fumes. Under certain conditions, a dust cloud of Terephthalic Acid may explode when ignited by spark or flame.

The manufacture recommends minimizing dust generation during handling and to implement control measures to keep dust concentrations below explosive limits. The manufacturer recommends the use of alcohol resistant firefighting foam or water spray to extinguish a fire. Firefighters should wear SCBA and full protective equipment.

Fluorosilicic Acid

Car number eight in the consist was an empty residue tank car that last contained Fluorosilicic Acid, hazard class 8, UN 1778, Packing Group II, shipped by Solvay Chemicals, Inc., East St. Louis, Illinois. The car weight was about twenty nine tons. Due to the intense fire there the product was emitted through the safety vent on top of this car. Fluorosilicic Acid, also known as Hydrofluosilicic Acid, is mainly used as a fluoridation agent for drinking water. It is extremely corrosive to the skin, eyes, mucous membrane through direct contact, inhalation, or ingestion. The material decomposes above 108 °C/227 °F producing toxic, irritating, and corrosive fumes, including Hydrofluoric acid and Silicon Tetrafluoride. Sodium Hydroxide Solution

Car number fifteen in the consist (the last derailed car) was a loaded tank car containing 199,000 pounds of Sodium Hydroxide solution, hazard class 8, UN 1824, Packing Group II, shipped by Occidental Chemical Corp., Niagara Falls, New York. The tank shell and fittings were not damaged and there was no release of material from this tank car in the accident. Sodium Hydroxide solution is an aqueous solution that is used in the making of drain cleaners, food processing, plastics production, soaps, and paint remover. Sodium hydroxide is strongly basic and reacts rapidly and exothermically with organic and inorganic acids. The material attacks aluminum and zinc with the evolution of flammable hydrogen gas. Sodium hydroxide solution is not combustible, and the substance itself does not burn.

Conclusions:

Hazardous materials were not a contributing factor in this collision but the release of product was a result of mechanical damages to the packages which contained each material.

Probable Cause

The accident was caused by a failure of the motor vehicle driver to yield to the train. According to the Baltimore County Police Department, the driver was charged with the following citations:

(Citation # 04Y0EH9 - TA 21-701a, Driver Failure to stop at a RR Grade Crossing)

(Citation # 04Y0EH9 – TA 21-703b, Driver Failure to stop Vehicle 15 to 50 feet from nearest railroad crossing)

(Citation # 0500EH9- TA 21-703c, Driver Failure to stop, look and listen at RR crossing)

(Citation # 0510EH9-TA 21-703d, Driver proceeding across a railroad crossing when unsafe)

(Citation # 0520EH9-TA21-703.1, Driver of a commercial vehicle approaching railroad crossing failing to slow down, stop and negotiate when clear)

(Citation # 0530EH9-TA22-412.3b, Operator not Restrained by Seatbelt)

(Citation # 0540EH9-TA21-901.1b, Negligent Driving)

A view of the onboard video recorder clearly indicated that the train crew was sounding a horn and blowing the whistle in accordance with their operating rules and federal regulations.

Overall Conclusions

The driver's failure to yield to an oncoming train was the absolute cause of this accident. A view of the onboard video recorder clearly indicated that the train crew was sounding a horn and blowing the whistle in accordance with their operating rules and federal regulations. This investigation concluded that the driver was found not wearing a seat belt and talking on a cell phone as he crossed over the tracks in the path of CSX

Train Q409-27.

Every operational check was completed on CSX, and no issues or discrepancies were taken with their operation up to, during and after the accident. CSX operated in full compliance with the current applicable federal regulations and their operating rules.