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**NTSB** National Transportation Safety Board

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*Office of Railroad, Pipeline &  
Hazardous Materials Investigations*

**Collision of Norfolk Southern Freight  
Train 192 With Standing Norfolk  
Southern Local Train P-22 With  
Subsequent Hazardous Materials  
Release at Graniteville, South Carolina,  
January 6, 2005**



# Consequences

- 9 fatalities
- 554 treated at hospitals
- 75 admitted
- 5,400 evacuated
- \$6.9 million property damage

# Investigation Team

Jim Southworth	Investigator-In-Charge
Debbie Hersman	Member on Scene
Rick Narvell	Human Performance
Jim Henderson	Hazardous Materials
Rick Downs	Survival Factors/Emerg. Response
Ruben Payan	Signal/Event Recorder
Russ Gober	Operations
Russ Quimby	Mechanical
Brian Fiffick	Transportation Disaster Assistance
Paul Sledzik	Transportation Disaster Assistance
Jim Ritter	Deputy Director
Keith Holloway	Media and Public Affairs
Bob Trainor	Hazardous Materials

# Investigation Team

Cy Gura

Tom Lasseigne

Crystal Thomas

Jim Remines

Frank Zakar

Jim Wildey

Gina John

Robert Moore

Track and Engineering

Hazardous Materials

Hazardous Materials

Operations

Metallurgy

Metallurgy

Graphics

Writing and Editing

# Parties

Federal Railroad Administration

Norfolk Southern Railway

Brotherhood of Locomotive Engineers and Trainmen

United Transportation Union

Union Tank Car

Trinity Industries

General American Transportation

Olin Corporation

Graniteville, Vacluse, & Warrenville Fire Department

Aiken County Sheriff's Office

# Graniteville Investigation

Focused On:

- Improperly lined switches
- Non-signaled territory
- Vulnerability of tank cars carrying hazardous materials
- Train crew protection in hazmat accidents

More than 6,500 man-hours



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# Train 192

- Departs Augusta, Georgia
- 2 locomotives, 42 freight cars
- 2,553 feet long/3,520 tons
- Track Warrant Authorization



Avondale Mills



Residential and Small Businesses



RAILROAD  
CROSSING  
CROSS ROAD









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# Train P22

- Local operating from Aiken, SC
- Picked up and dropped off cars at local industries

# P22 Train Crew

- Consisted of an engineer, conductor and brakeman
- Regularly assigned brakeman was working as the conductor
- Engineer and brakeman jobs were filled from extra boards

# P22 Train Crew Work Hours

- Conductor & Brakeman on duty 7:00 a.m.
- Engineer on duty at 8:32 a.m.
- Conductor holds job briefing and discusses plan for the day
- Taxi lined up for Warrenville 6:15 p.m

# P22 Reaches Avondale Mills

- P22 arrives at Avondale Mills 6:10 p.m. after sunset
- No job briefing conducted at Avondale Mills as required by NS
- Brakeman lined and locked the switch for the industry track
- Pressed for time to finish at Avondale Mills before 7:00 p.m.

# P22 Train Crew Activities at Avondale Mills

- 6:20 p.m. - Taxi instructed to pick up crew at Avondale Mills
- 6:59 p.m - Completed work at Avondale Mills
  - Taxi passed within 21 feet of the switch and industry track. No one looked at the switch position as they left the area.
  - NS rules require switches to be lined back for the main line track
- 7:53 p.m. - Brakeman released track warrants

# Conclusion

At the speed train 192 was traveling as it entered Graniteville, the distance required for the train crew to perceive the banner of the misaligned switch, react to it, and brake the train to a safe stop was greater than the distance available.



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