

Transportation Accident Paper:

Automobile Collision and Explosion
Along Hwy 30 from Cuatrociénegas Site
on September 9, 2007

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Topics:

- **Background**
- **Incident Description**
- **Probable Sequence of the Incident**
- **Aftermath**
- **Root Causes**

General

- **Date of the incident:** September 09, 2007
- **Delivery Time:** ~ 19:40
- **Time of the collision:** ~ 20:00
- **Time of the Explosion:** ~ 20:43
- **Place of the incident:** Hwy 30, between Monclova and Cuatrociénegas
- **Product involved:** 25 tonne ANFO Regular 1.5D UN 331

Accident Location



Accident Location



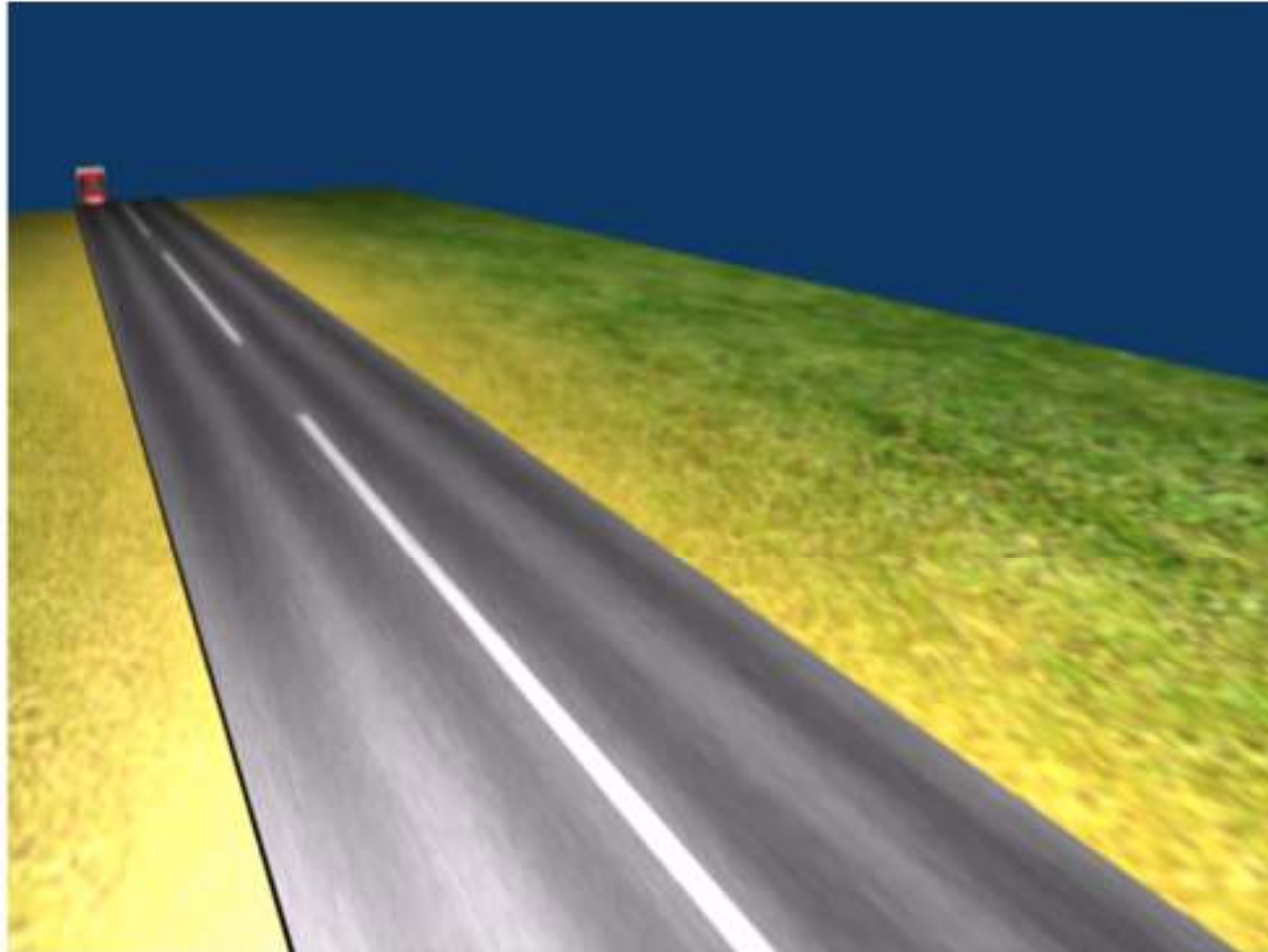
Accident Location



Incident Description

- A pickup truck, travelling in the opposite direction of the tractor-trailer transporting ANFO, loses control and enters the opposite lane colliding with the tractor trailer.
- This collision initiated a fire, which spread and resulted in an explosion ~ 43 minutes later

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Incident Chronology

- **At about 8 PM local time:**
 - collision of vehicles and fire begins
- **Between 8 PM and 8:30 PM**
 - vehicles behind tractor-trailer (eastbound) are stopped by the accident
 - vehicles coming westbound from Monclova are stopped by an off-duty police officer
 - bystanders from stopped traffic and nearby towns gathered at accident site
- **At about 8:30 PM**
 - personnel from various emergency services arrive at accident scene to attend to the wounded. Journalists also arrived
- **At about 8:43 PM**
 - the explosives product detonates

Photos



Cause of the Explosion

- Fire began in the cab area (driver statement)
- Fire spread to the trailer (Video footage)
- Fire burned for ~40 minutes (video clock)
- Exact cause of initiation of explosion is unknown
- Known Potential Sources of initiation
 - Tyres
 - Fuel Tank
 - Fire Extinguishers
 - Fire/heat (?)

Injuries and Material Damages

- 1 fatality due to vehicular collision and 27 fatalities from the explosion
 - 250 injured people (some of them seriously)
 - First Responders, neighbours, drivers / passengers
 - 28 fatalities: 26 men, 2 women (2 minors and 26 adults)

Material Damages

- Total loss of tractor trailer transporting ANFO
- Total loss of the pickup truck which struck the tractor trailer
- At least 50 vehicles passing through the area with material damages
- 67 homes with structural damages within a radius of 1km (rural zone with low populations density)
 - 12 homes with serious damage (requiring rebuilding) and 55 with minor damages
- The detonation created a crater 20m diameter and 3m deep
- 350 people were evacuated from Celemania to Nadadores town
- Neighbourhood and public damage (houses, electrical poles, road, vehicles)

Photos



Photos

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Photos

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Photos



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Root and Contributory Causes

- **Erratic driving behaviour of Pickup truck Driver leading to collision**
 - Reckless and high risk driving behaviour.
 - Road conditions.
- **Inability to extinguish/contain tractor-trailer fire**
 - Driver unable to use fire extinguishers in the cab
 - Truck design
 - Use of Improper fire extinguisher (water) by a road construction worker
 - Fire fighters not there in time (see 'emergency response')
- **Inadequate transport route risk assessment**
 - Sunday evening with high density traffic

Root and Contributory Causes

- **Inadequate emergency response**
 - Driver's unsuccessful in cordoning off area
 - Drivers leaving scene too early
 - Call not made to SETIQ (led to delayed ER)
 - Call not made to Orica
 - No exclusion zone set up by ER personnel
 - Distance of Emergency Services from Accident site
 - Day and time of Incident (Sunday evening)
 - 066 (Emergency Phone no.) does not alert SETIQ and Federal Police; only local Emergency Responders
 - Federal Police are the only ones that have cordoning authority
 - ER personnel may not have recognised/understood UN placards nor been properly trained to respond to them

Accident Location



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Thank you

