

## **Transportation Accident Paper:**

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

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# Topics:

- **General Information**
- **Incident Description**
- **Injuries and Material Damages**
- **Incident Chronology**
- **Probable Sequence of the Incident**
- **Media photographs**
- **Root Causes**

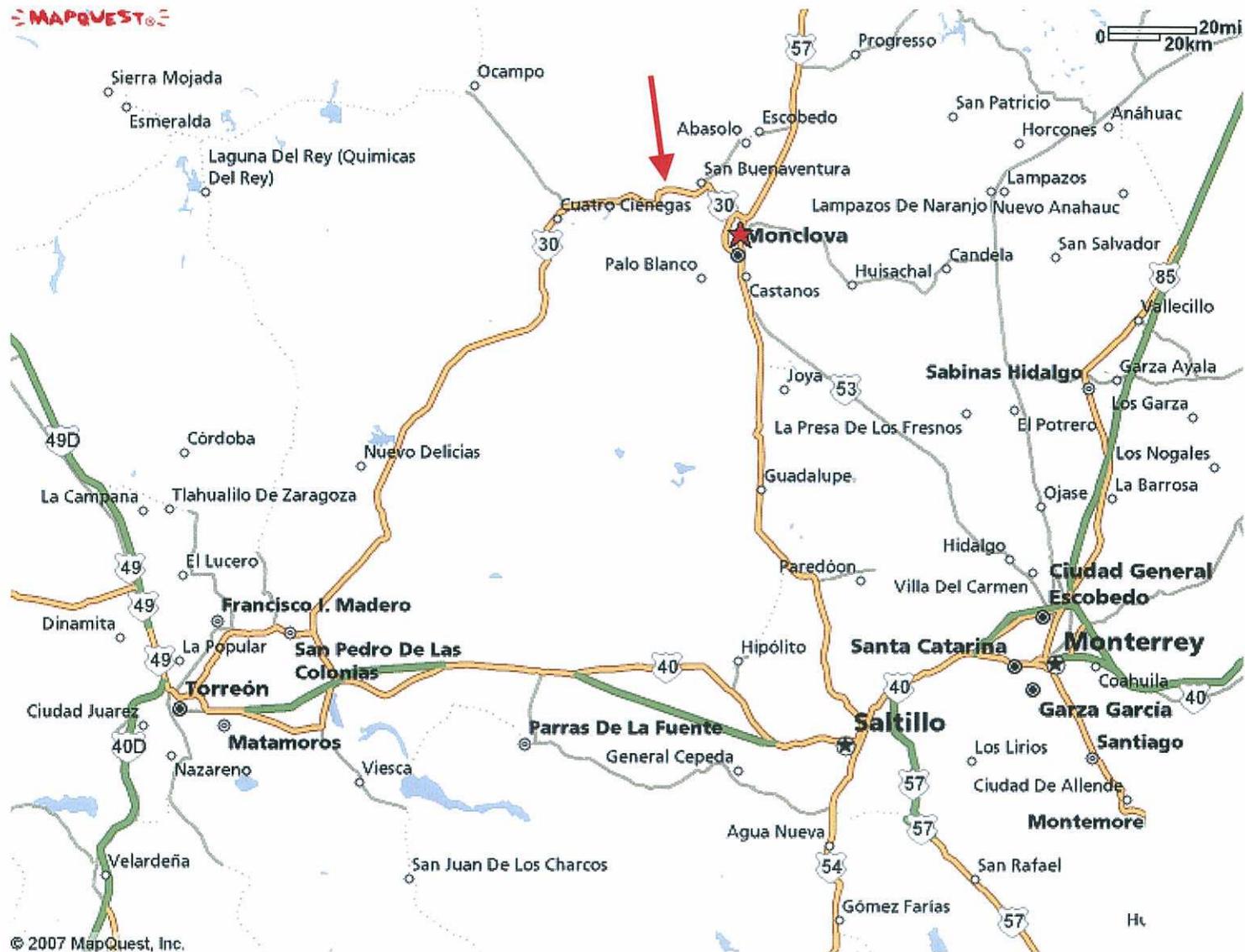
# General

- **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:** Km. 37+100 of Federal Highway 30, section between Monclova and Cuatrociénegas.
- **Shipping Co:** Fletes y Traspaleos S.A. de C.V.
- **Vehicle involved:** Tractor trailer with license plate 148DZ2.  
License plate of trailer 223WD7
- **Product involved:** 25 tonne ANFO Regular 1.5D UN 331  
Manufactured by Explosivos Mexicanos, S.A. de C.V. under general permit SEDENA 119.

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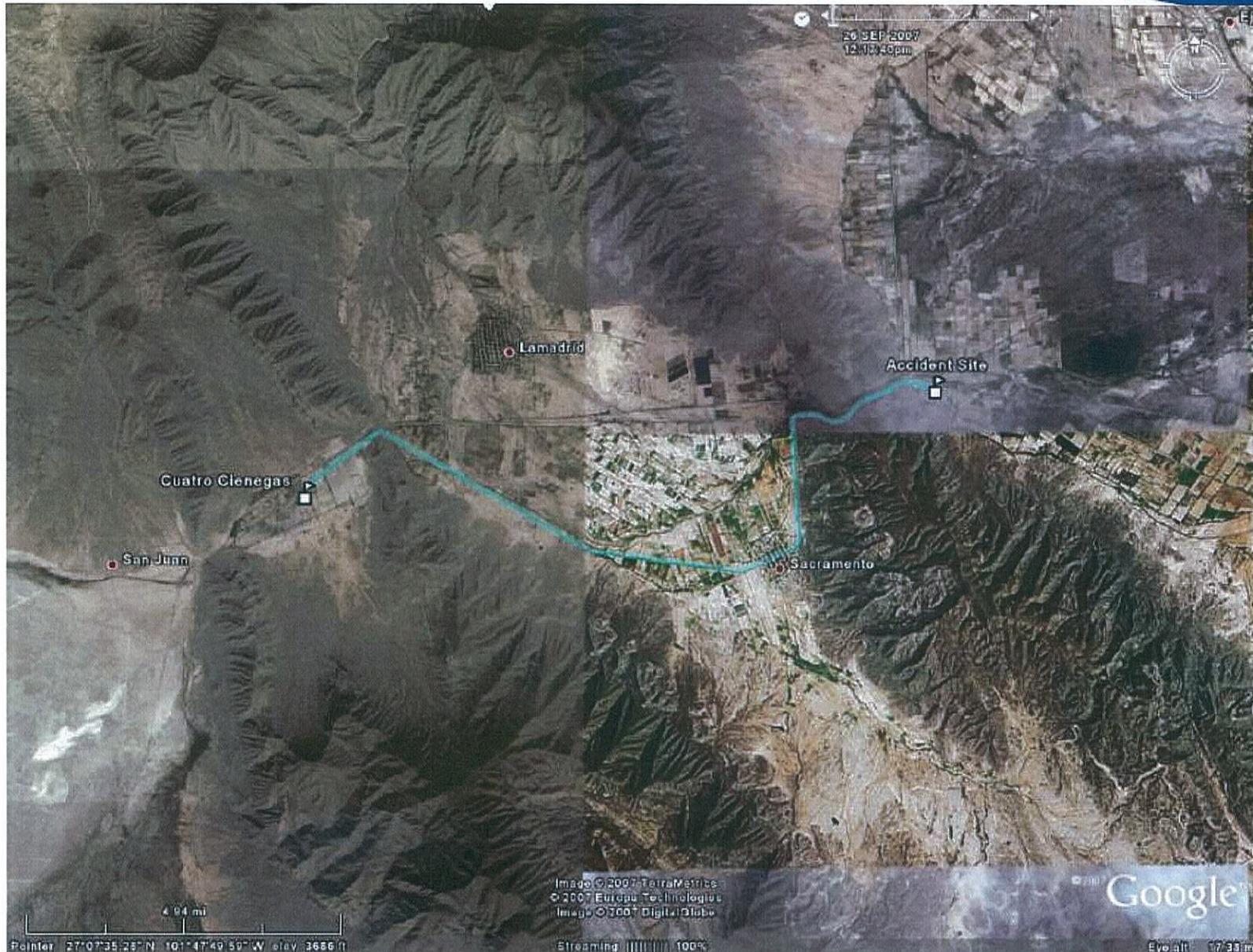
# Accident Location

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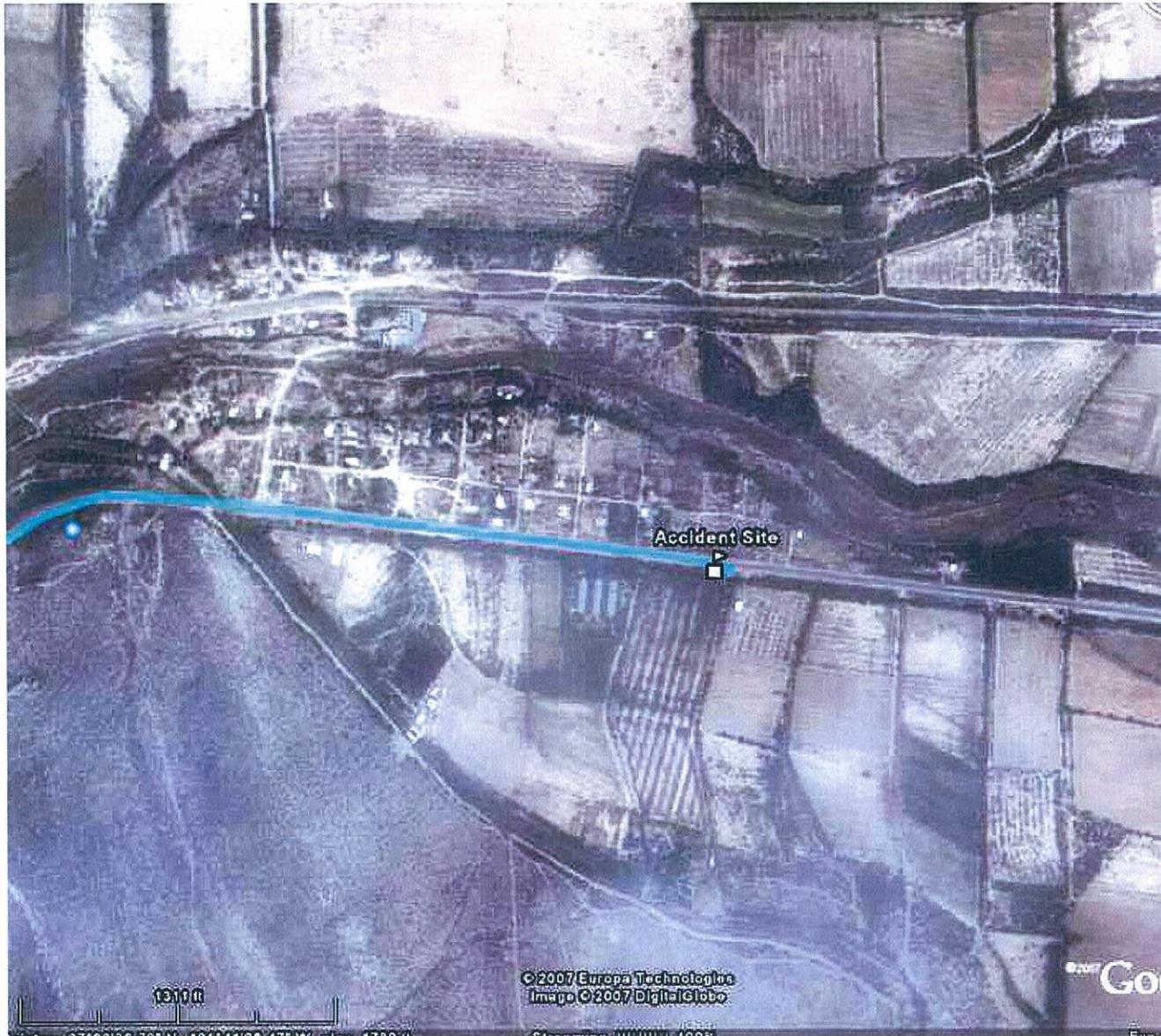
# Accident Location

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# Accident Location

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## 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

# 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)

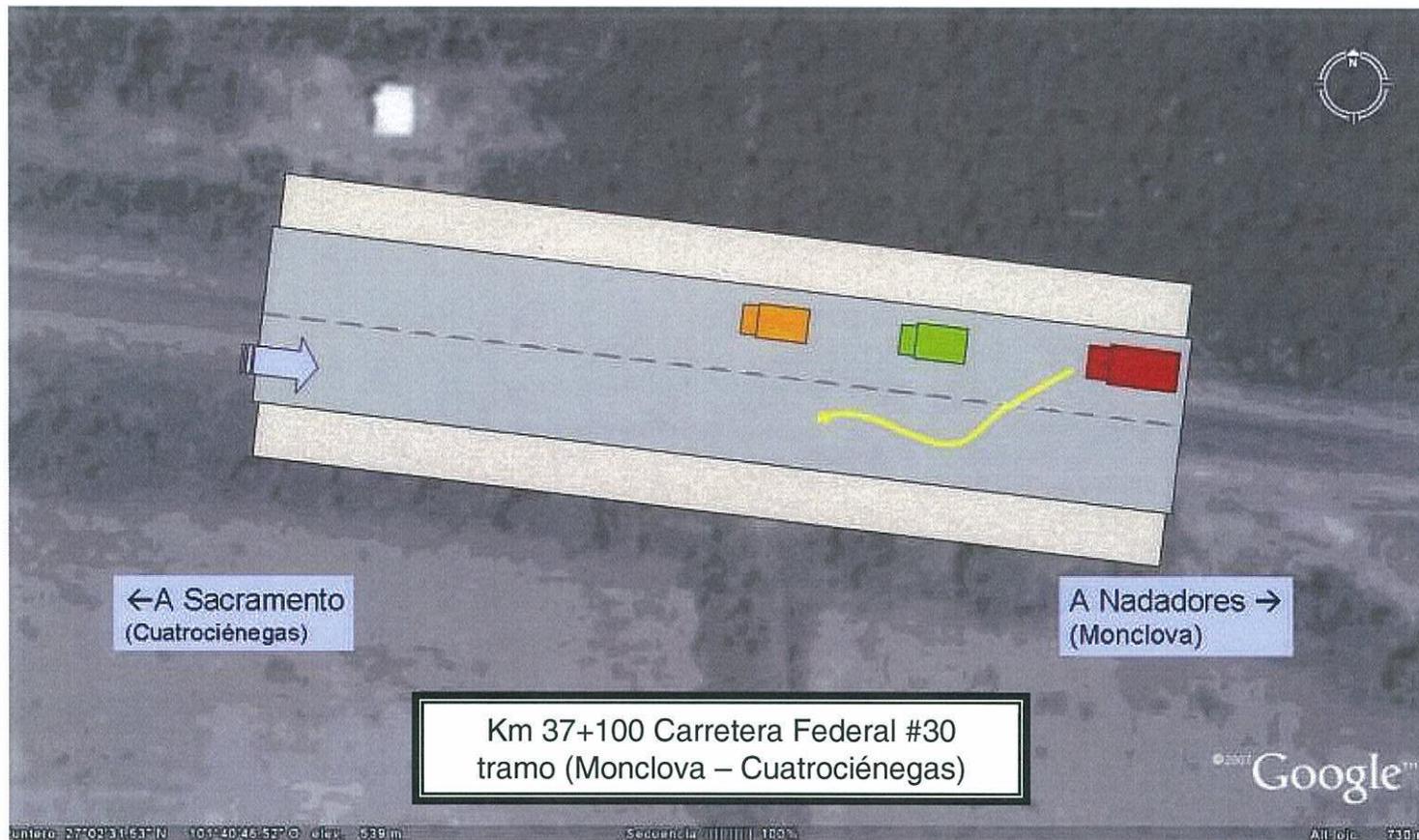
# Material Damages

- 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)

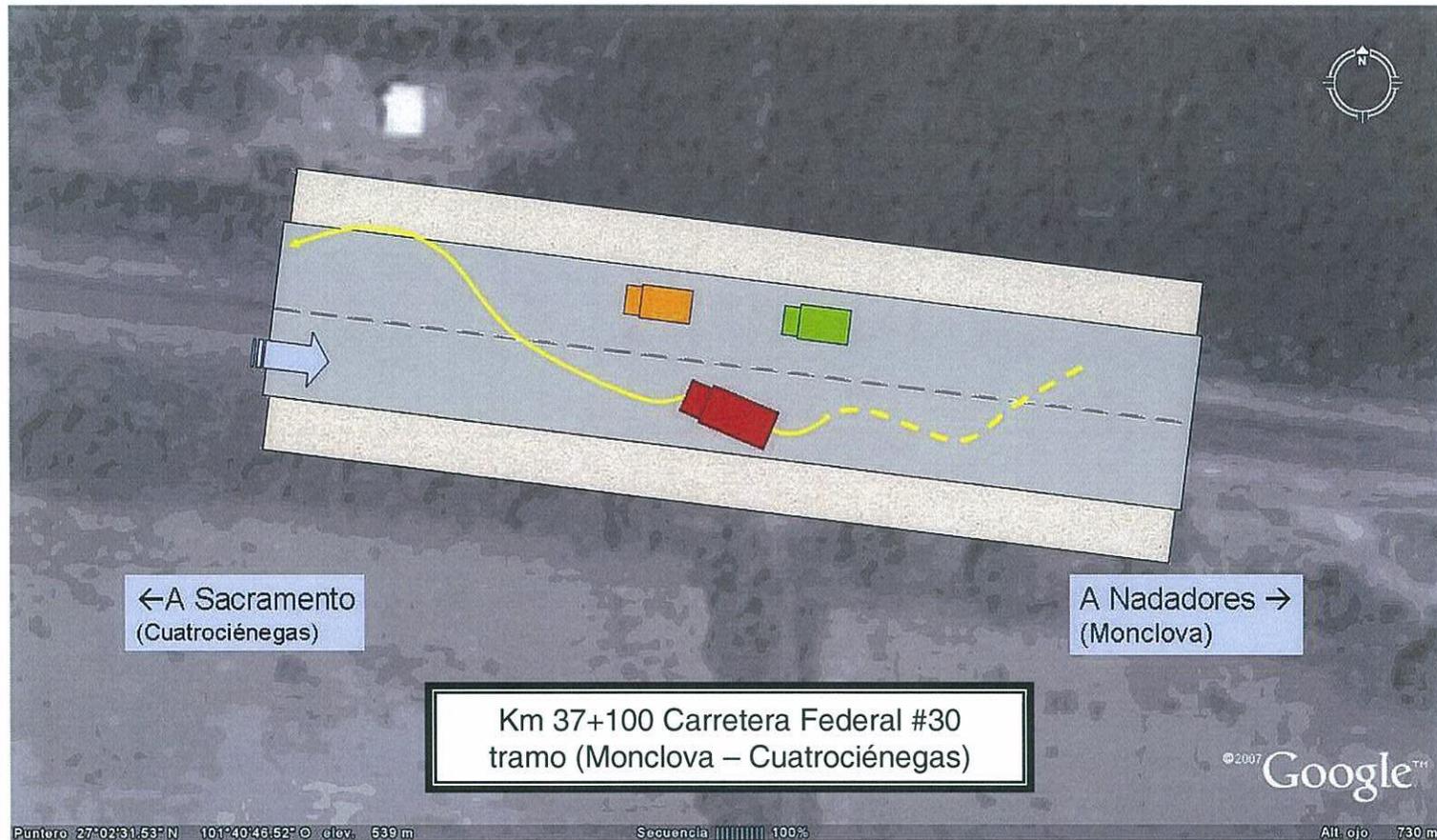
# Incident Chronology

- **At about 8 PM local time:**
  - there is a collision of the vehicles and the fire begins.
- **Between 8 PM and 8:30 PM**
  - vehicles behind the 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 the accident site
- **At about 8:30 PM**
  - personnel from various emergency services arrive at the accident site to attend to the wounded. Journalists had also arrived
- **At about 8:43 PM**
  - the explosives product detonates

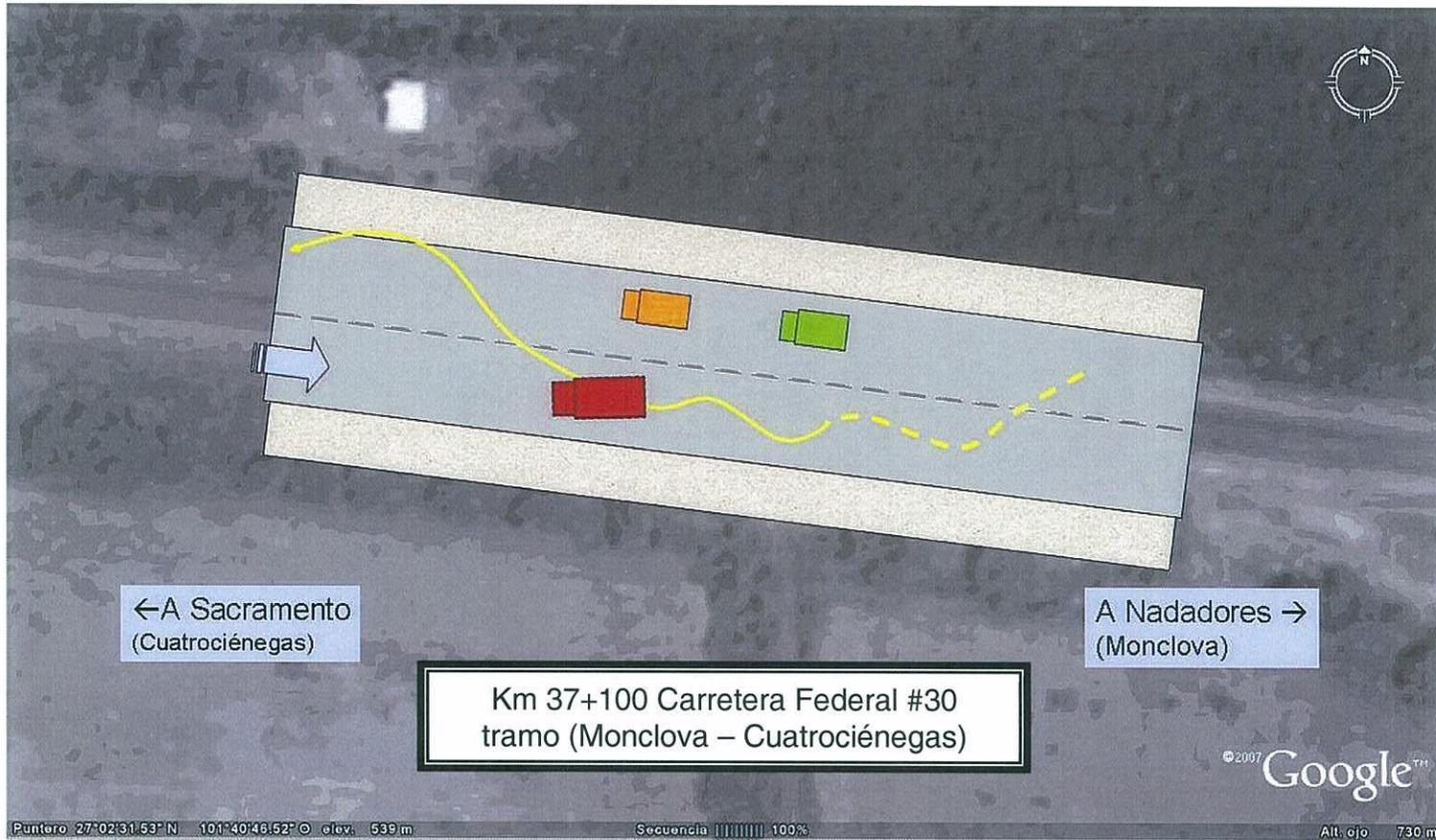
# Probable Sequence of the Incident



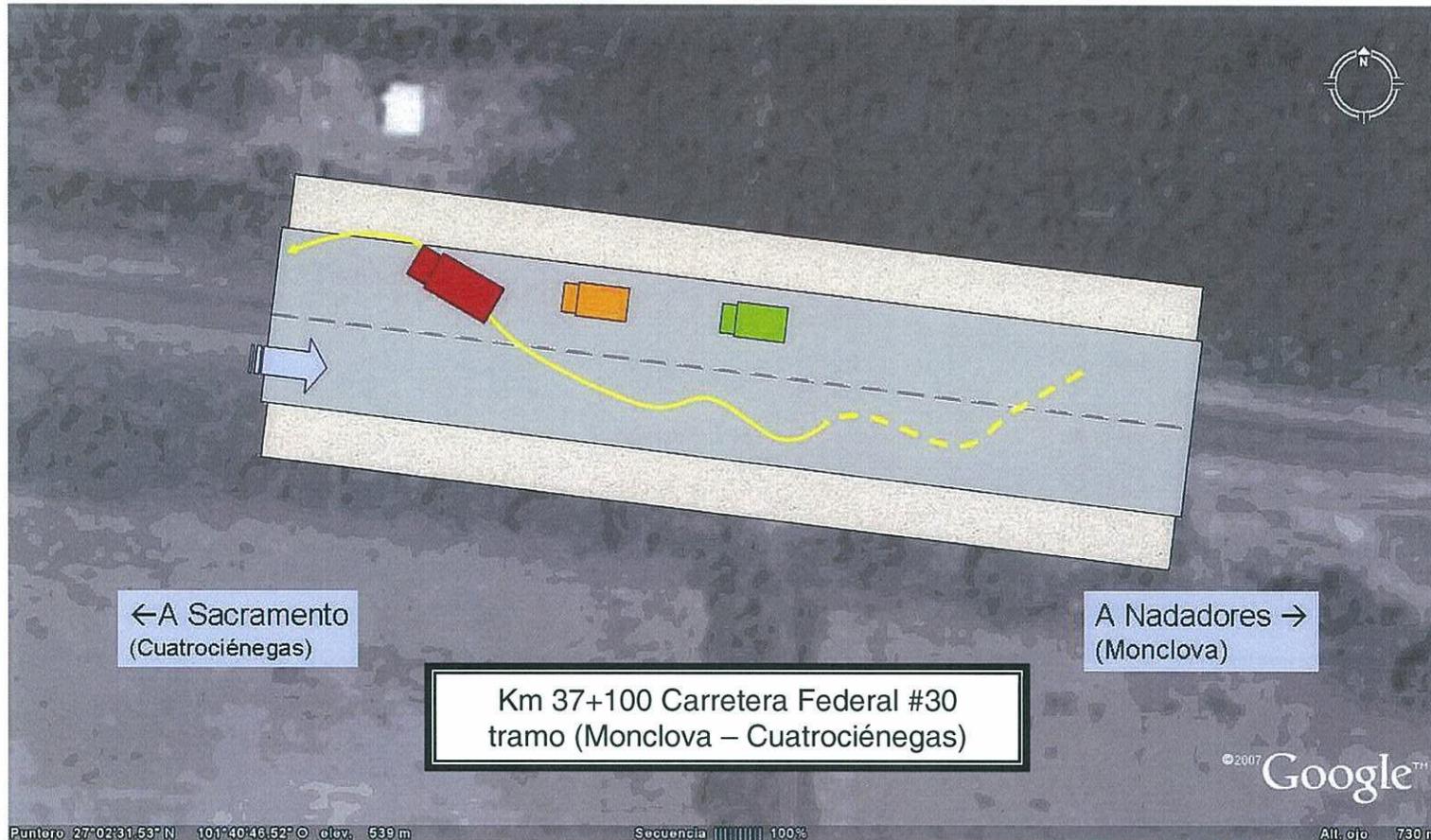
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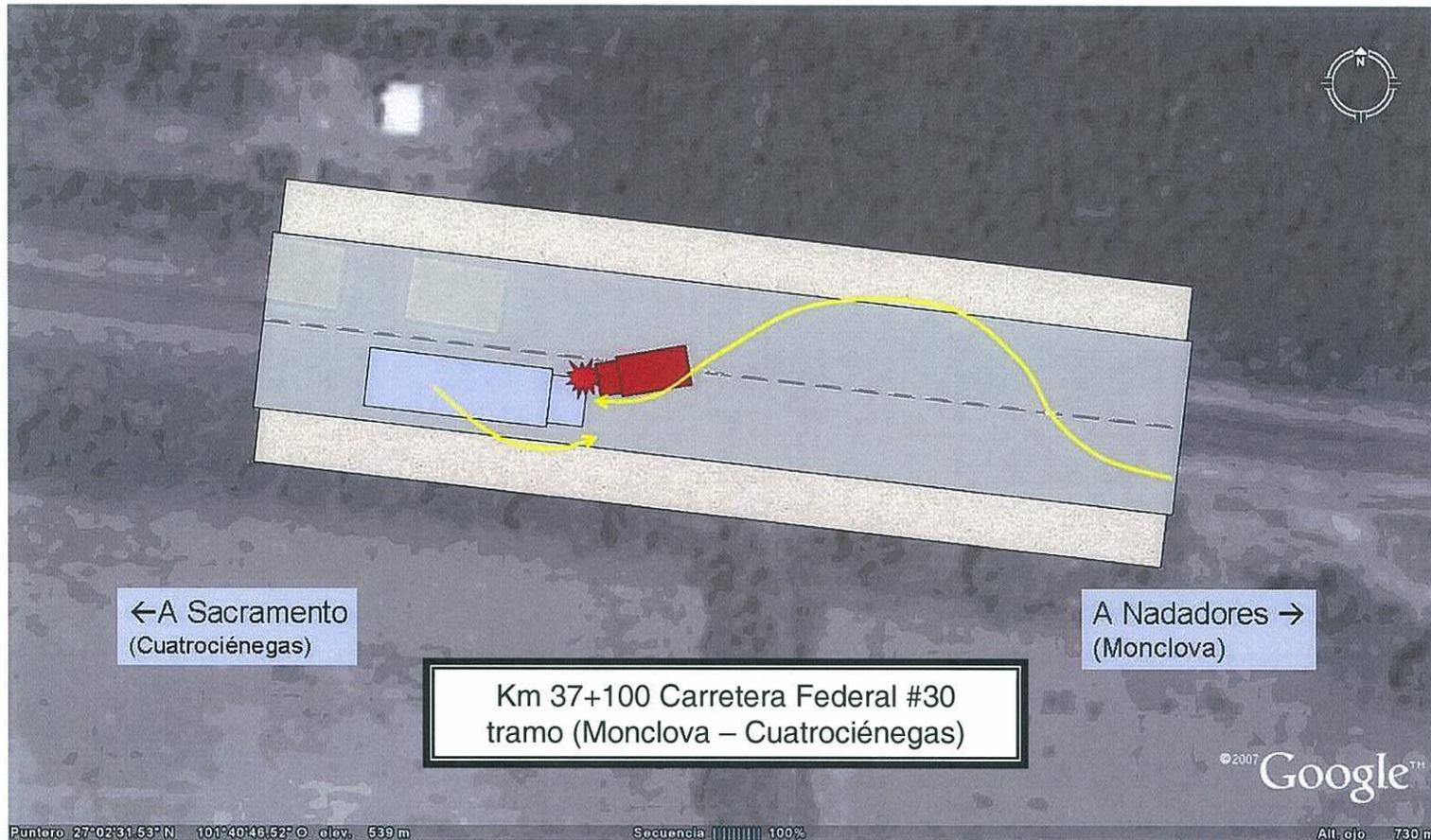
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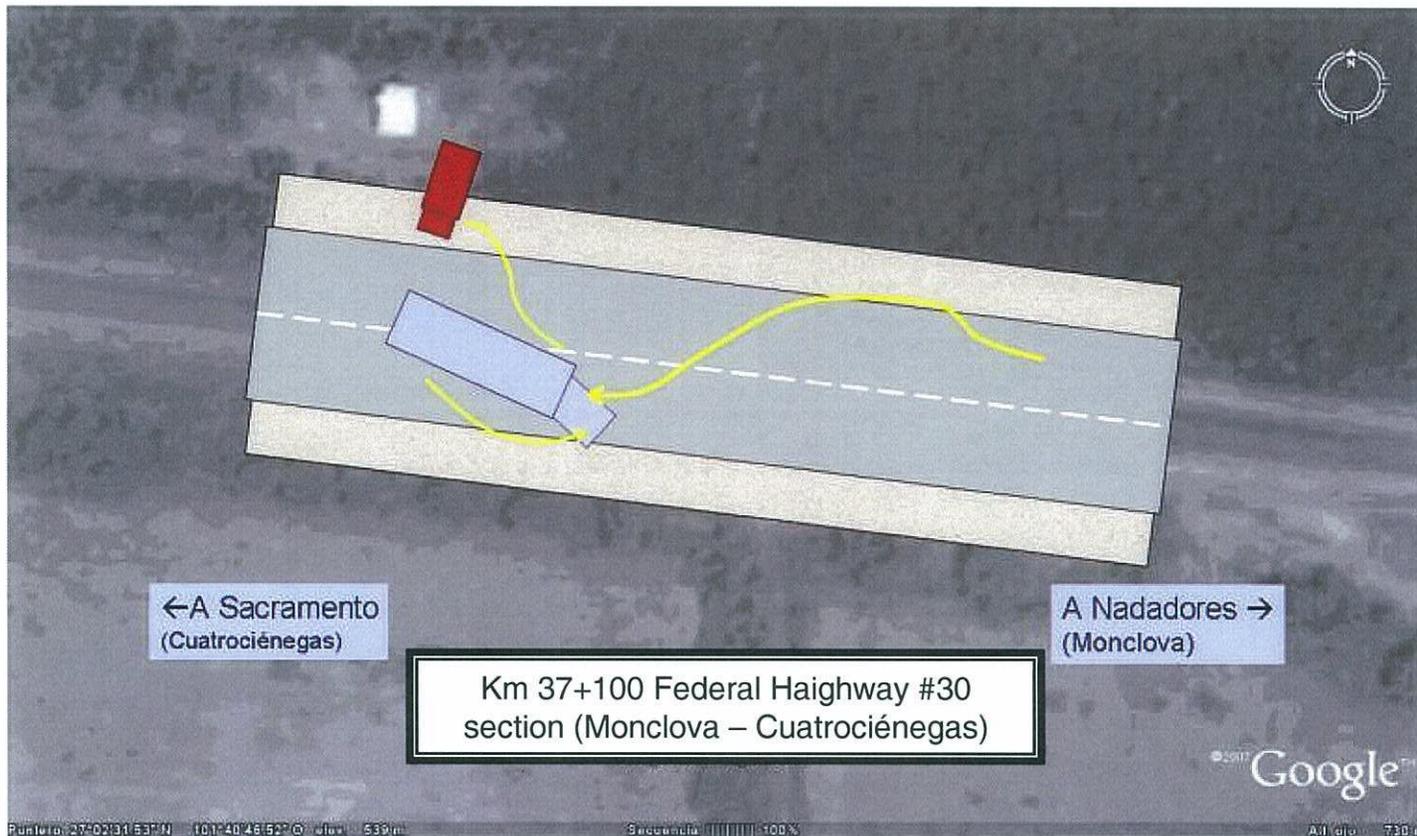
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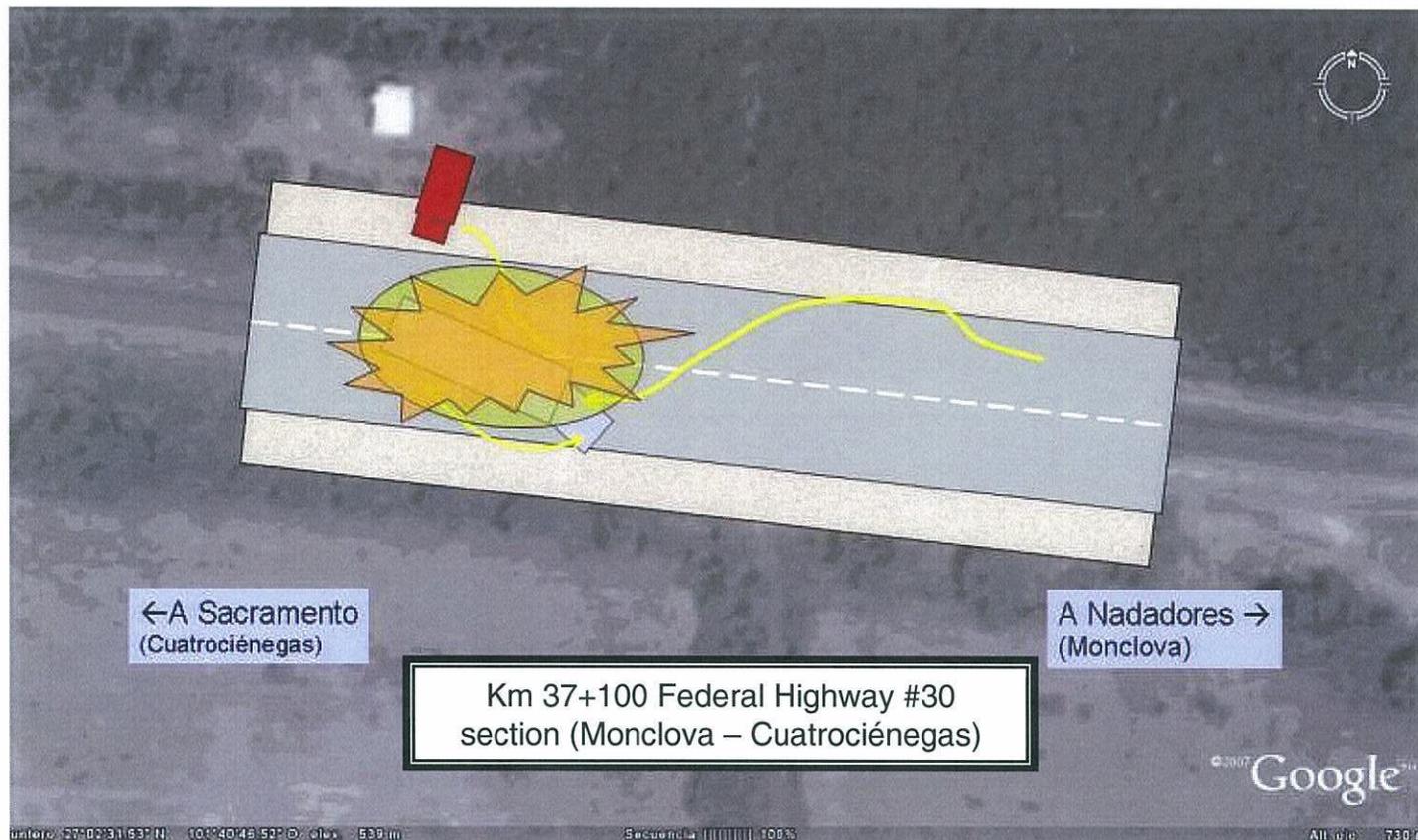
# Probable Sequence of the Incident



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# 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 (?)

# 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')

# 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