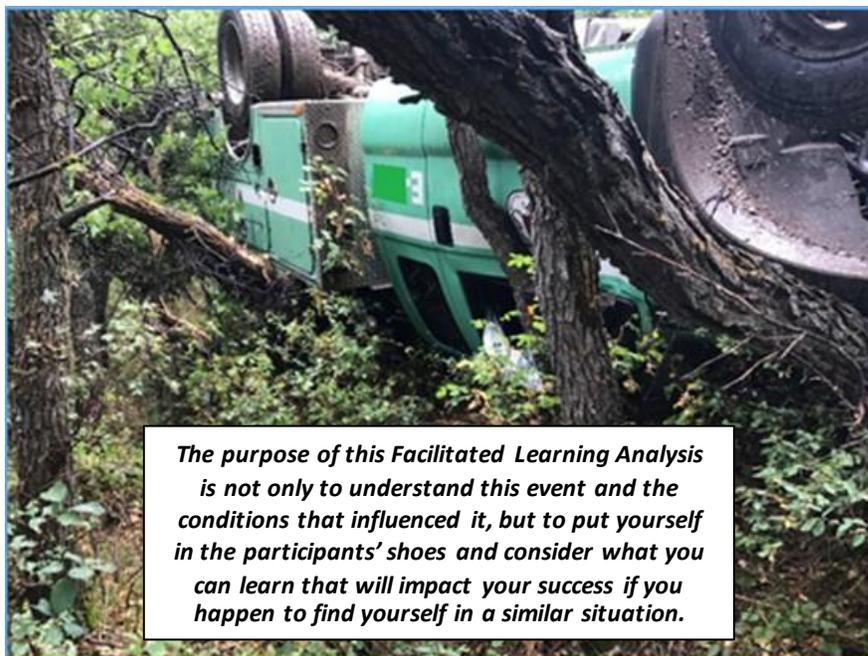


Hauser Road Engine Rollover

Facilitated Learning Analysis



The purpose of this Facilitated Learning Analysis is not only to understand this event and the conditions that influenced it, but to put yourself in the participants' shoes and consider what you can learn that will impact your success if you happen to find yourself in a similar situation.

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1. Executive Summary

“When will this end!”

As the engine rolled to its right, windows splintered and shattered, debris ricocheted inside the cab and metal crumpled. The engine came to rest upside down against several oak trees. Everything in the cab came to a stop. A muffled and intermittently eerie buzzing came from the horn. Water hissed.

On Tuesday, Sept. 12, 2017 a Type 6 Engine was involved in this a rollover accident while returning from a smoke investigation. An isolated storm had turned the clay-based road the engine was traveling on into slippery mud.

After this incident occurred, the three engine crewmembers, along with District staff involved in the incident, participated in an After Action Review to discuss successful outcomes and lessons learned from their perspectives. The primary lessons learned include:

- ❖ Assure routes of travel to and from an incident are communicated.
- ❖ Base medical decisions on the mechanism of injury and have backup medical supplies available.
- ❖ Safety features now required in the contract specs for national engine standardization are effective and work.

2. Narrative

The Smoke Report

This morning started out like most. Engine checks on U.S. Forest Service Engine 36, a 2011 F550 Type 6 Engine, were completed and morning briefing was underway. The day’s weather called for isolated rain showers. Engine 36’s crew was staffed with three members.

At 1227, Captain 36 called Dispatch and reported the smoke “UTL (*unable to locate*) and that they were returning to station.” As the engine approached a small decline and curve in the road, the engine started to slide in the sticky clay mud. (See photo on right.)

A “perfect horrible alignment” of slope, slick mud and curve in the road all lined up.

The driver turned the wheel to the left in an attempt to correct the engine’s trajectory. However, the weight of Engine 36 and the road conditions pushed the engine to the edge of the road. Engine 36’s engineer applied the brake and let off—to no avail. Engine 36 continued toward the right side of the road, toward the road’s edge.



Down the Embankment

Engine 36’s passenger-side front wheel slid toward the edge. Everyone braced for the expected bump into the lip of the road. However nothing was there to slow the engine’s slide to the right and the front wheel went off the road, followed by the rest of Engine 36.

The engine violently rolled two-and-a-half times down the embankment, gaining speed with each rotation. “*When will this end!*” the Engine Captain thought to himself as glass shattered, metal crumpled and screeched, and the world spun end over end.

Engine 36 came to rest on its roof, braced against large trunks of oak brush. Everything in the cab came to a stop. A muffled and intermittently eerie buzzing came from the horn. Water hissed. As the crew steadied themselves, calling out to check the status of each other, a loud “pop” from the roof was heard.



As they felt the vehicle’s cab start to give a little bit, the decision was made to exit as quickly as possible. The curtain airbags were still partially inflated. Captain 36 had to deflate them with his personal knife. Exiting out the passenger side window, the crew barely had enough room to crawl out the opening with metal scraping against their backs and stomachs.

Out of the Metal

Once out of the engine, the three started to evaluate each other’s medical condition. All three had

been through WFR (Wilderness First Responder) training and applied these skills.

Because its compartment was pinned against the oak, the engine's trauma bag was unavailable. Fortunately, the crew carried field trauma packs in their line gear and were able to access those.

Initial evaluation showed all three to be in relatively good condition. A laceration was located on Captain 36's right elbow. Engineer 46 had some slight pain in his side and stated that he was feeling slightly nauseated. Engineer 46 had been riding in the back seat. Because of his 6-foot 2-inch height, he had been riding sideways for comfort.



After realizing that they could not hit a repeater with their handheld radios, Captain 36 climbed back into the cab and retrieved two cell phones from the debris. The crew then climbed up the embankment to call Dispatch. Engineer 46 sat on the side of the road as the other crewmembers continued to evaluate his condition.

'I Rolled the Engine'

At 1236, Engineer 36 made the cell phone call to Montrose Interagency Dispatch Center. His first words were: *"I rolled the engine."*

At first, the dispatcher thought it was a joke, but quickly determined the seriousness of the situation. When the dispatcher asked if an ambulance was needed, it was relayed that *"everyone is up walking around"* and no medical attention was needed.

The Fire Duty Officer was notified and initiated the District's emergency notification "phone tree." The accident location, Houser Road and Divide Road, along with a latitude and longitude, were relayed to Dispatch at 1241. Once again, the dispatcher asked again if any medical services were needed at the accident location.

Captain 36 stated that he had a laceration on the elbow but there was no need for emergency medical services. By this time, the District Fire Management Officer (Division 31) and Law Enforcement had been notified. Division 31 was in route to the accident location.

During the hour-long drive to the location, as Division 31 encountered dry and dusty roads, he started wondering: *"How did the engine go off the road?"* However, as he drove through the aspen stand along Houser Road, he began to encounter the same intermittent isolated slick, clay muddy conditions that Engine 36 had also found.

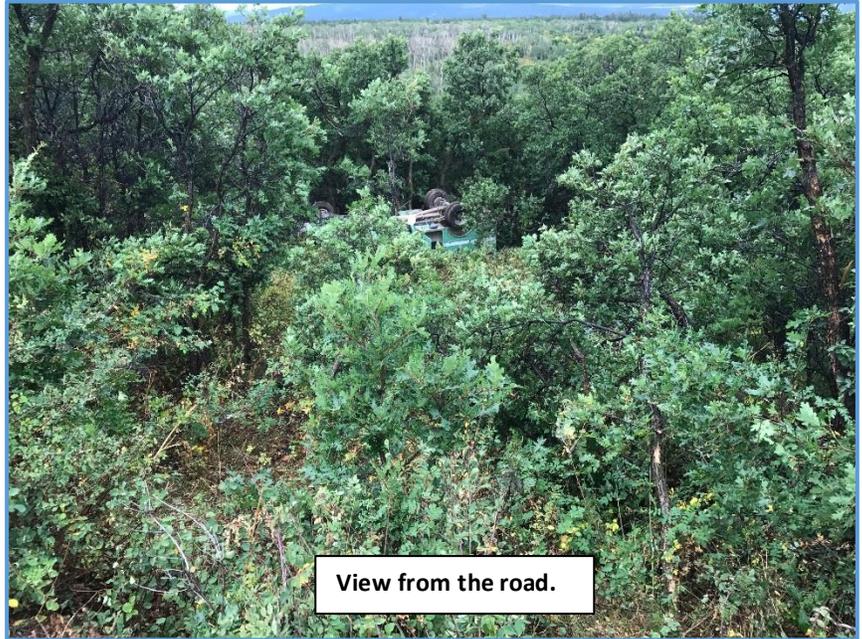
As Division 31 pulled up to the accident location, he found the crew along the road—but the engine was nowhere in sight. With the high height of the oak brush and the engine's location farther down the embankment, it was almost totally obscured from the road. (See photo on next page.)

After several hours, the local Forest Service Law Enforcement Officer and a Colorado State Patrol Officer arrived on scene and started their accident investigation. Once this was finished and witness statements had been collected, Division 31 took the three crewmembers to Montrose Memorial Hospital for evaluation.

3. Lessons Learned by the Participants

What Went Well?

- ✓ **Equipment (Engine) Standardization 2011 National Specifications** – Require a Rear Cab Protection Rack (headache rack), Supplemental Restraint System (side curtain airbags), as well as all safety features available to the vehicle from the manufacturer. In addition to seatbelts being worn, these features led to a successful outcome of minor injuries to those involved in this rollover.
- ✓ **Training** – All crewmembers had participated in preseason “Incident Within an Incident” training. This training, combined with this engine crew working together for several years, resulted in calm and collected decision-making throughout the incident, as well as their systematic extraction from the vehicle.
- ✓ **Field Trauma Kits** – While fortunately not needed, the crew had access to small trauma packs carried in their line gear. The main trauma bag was unavailable due to the compartment being pinned against the oak brush. However, if needed, the crew had backup trauma gear available.
- ✓ **Notifications/Communications** – The established emergency “phone tree” notification process operated efficiently. Cell phone reception was available in this location and was utilized due to the vehicle radio being damaged and the handheld radios not being able to hit a repeater.



4. Questions for Discussion

- ✓ ***Do you specify your travel route when responding or returning to station on your local unit?***

Travel routes to and from the smoke report were not communicated between the engine and Dispatch. Telephone Draw was the only description of the area they were in and that is a vast expanse of land. Had the crew been incapacitated, locating the engine and crew would have been time consuming and difficult. Only the tracks in the muddy clay road gave any indication of the engine leaving the road. Due to the size of the oak brush and grade of the embankment, the engine was totally obscured from the road.



- ✓ ***Should you be a medical provider to yourself and/or your crew if you were involved in the accident?***

No outside emergency medical response was initiated and an accurate description of what had happened didn't get relayed to Dispatch (vehicle rolling two ½ times). The crew stated that if they had rolled up on a similar vehicle accident with the same violent mechanism of injury, there would be no hesitation in calling for outside emergency medical services (EMS). While all three personnel were certified WFRs (Wilderness First Responder), they all had been in the accident and later felt an EMS provider with an outside perspective should have come to evaluate their condition. (Engineer 46 was later found to have broken a rib during the vehicle accident.)

- ✓ ***Does your unit require an agency-specific Law Enforcement response to accidents?***

Law Enforcement response took more than two hours. The crew involved in this accident had to wait that amount of time, in addition to providing interviews and statements. The nearest U.S. Forest Service Law Enforcement Officer (LEO) was in Grand Junction, leading to this long response time. However, a BLM Law Enforcement Officer was located in Montrose (much closer). Could the BLM LEO have provided the same service? With the shortages in Law Enforcement, what other resources can assist with this type of need?