



Unfastened Seat Belt, Unfamiliarity with Vehicle and Other Human Factors Lead to Fatal Accident

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On June 26, 2009, a Lawrence Livermore National Laboratory (LLNL) employee was fatally injured in a vehicular accident on site. While operating a Government-owned pickup truck, the employee apparently lost control of the vehicle when backing out of a parking stall. Workers inside and outside of nearby buildings heard loud engine and tire noises, and noticed vehicle movement in the parking lot.

When these employees investigated the source of the commotion, they observed that the truck had accelerated rapidly rearward, colliding with several parked vehicles. They discovered the seriously injured driver lying on the parking lot pavement. Paramedics arrived within a few minutes of their initial 911 calls. The driver was transported by ambulance to an onsite landing zone, and then by medical evacuation helicopter to an area hospital. Unfortunately, the employee died as a result of the injuries sustained when he was ejected from the truck cab.



Analysis

The subject vehicle is a 2008 Chevrolet Silverado, two-wheel drive, extended cab, half-ton pickup truck, with a 5.3-liter V8 engine and a four-speed automatic transmission. During its last routine preventive maintenance, including safety inspections, no mechanical or operational problems were identified.

An incident analysis and a DOE accident investigation were conducted, including collaboration with the California Highway Patrol and support from an accident reconstruction expert. The lack of direct observation limited their ability to determine the root causes, however, the committees concluded that the following causal factors contributed:

- Driver's seat belt was not engaged at the time the vehicle began to move—The use of the seat belt would have prevented the driver's ejection from the vehicle
- Driver fully depressed the accelerator—The sudden acceleration of the vehicle caused an uncontrolled reverse trajectory, resulting in collisions with parked vehicles
- Driver's door was open—This open door was the primary contact point for the two initial collisions. The open door also allowed a path for his ejection from the vehicle.

The committees conclusions include:

1. The driver probably would have survived this accident if he had been wearing his seat belt. Although the precise reason for not wearing the seat belt cannot be determined, it is postulated that he may have disengaged the seat belt to locate and release the parking brake before backing up.
2. LLNL has many different makes and models of vehicles. Drivers may not be sufficiently familiar with the operating controls and other features before they operate these vehicles. In this accident, it is postulated that the driver may have opened the door to provide additional light to locate and release the parking brake.
3. The subject vehicle is a full-size pickup truck with limited visibility and a large turning radius, which is common for vehicles of this type. Most of the LLNL population does not have experience driving this type of vehicle. As full-size pickup trucks are widely available onsite, most employees use them instead of smaller vehicles when transporting only passengers and small items.

Recommended Action

1. Fasten your seat belt before turning on a vehicle, or if that is not possible due to vehicle design, before engaging the gearshift.
2. Familiarize yourself with the operating characteristics of a vehicle prior to operating it.
3. If you don't need a full-size pickup truck, use a smaller vehicle, if one is available.

Where to Get Help or More Information

- Your supervisor
- Training Course HS-5600-W, "Defensive Driving"
- "Vehicle Operations and Traffic," *ES&H Manual*, Document 21.3
- *California Driver Handbook 2009*, (especially "Seat Belts" beginning on page 16 and "Safe Driving Practices" beginning on page 31) published by the California Department of Motor Vehicles [available at <http://www.dmv.ca.gov/pubs/dl600.pdf>]
- "Vehicle Accidents and Fatalities Reinforce the Need for Safe Driving," article in *DOE Operating Experience Summary 2009-04*, April 21, 2009
- Related LLNL Lessons Learned Bulletins
 - "Before Backing Up, Take Time to Look Around Your Vehicle," May 28, 2009 (LL-2009-LLNL-04)
 - "Seat Belt Saves Driver," May 20, 2002 (LL-2002-LLNL-12)
 - "Wear Vehicle Safety Belts," September 18, 1998 (UCRL-MI-132094)

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