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Health and safety in the workplace is a primary concern in the Department of Energy. In executing its diverse mission, DOE has responsibility for operating, maintaining and cleaning up nuclear related facilities around the country. While the primary focus of safety is properly aimed at providing protection of its workers that perform these critical activities in a hazardous and radioactive environment, there is one activity that the majority of employees do on a daily basis – drive a vehicle. DOE personnel drive to and from work, drive on sites, and operate a wide variety of vehicle types. In the last two months, vehicle accidents on or near DOE sites have caused fatalities to three DOE employees. Vehicular safety is extremely important so that DOE employees remain safe, and department property and facilities are protected.

This bulletin will provide a few examples of vehicular incidents that have occurred on DOE sites, and then some lessons learned that all of us should consider whether we drive DOE vehicles or as we drive our own vehicles every day.

Discussion:

Background

When events involving vehicles -- whether or not property damage or injuries result – occur on DOE sites or involve DOE personnel, they are reported to the Occurrence Reporting and Processing System (ORPS). ORPS provides timely notification to the DOE complex of events that could adversely affect: public or DOE worker health and safety, the environment, national security, DOE's safeguards and security interests, functioning of DOE facilities, or the Department's reputation.

Several examples of vehicle incidents are discussed below. These incidents resulted mainly from driver inattention, inadequate or improperly maintained equipment, contract violations, and/or personnel fatigue.

Discussion

The following are several example of vehicular accidents that occurred on or near DOE sites:

- On November 4, 2018, a man was critically injured on the Hanford site. According to police, his motorcycle collided with a deer late on a Sunday evening as he was driving through the Hanford reservation. A passerby in another vehicle found the man unresponsive, pulled the motorcycle off of him and called for help. He later succumbed to his injuries.
- On October 13, 2018, two employees of the Waste Isolation Pilot Plant (WIPP) were killed in a car crash. The two men were ejected from their vehicle as they traveled at a “high rate of speed” as reported by New Mexico State Police. Police spokesperson said the vehicle left the road for an unknown reason and rolled over.
- On May 2, 2016, a service truck at the Hanford Waste Treatment Plant (WTP) rolled 30 feet on a slight grade because the driver had not put the manual transmission in gear when he turned off the engine. The driver had left the transmission in Neutral and had gone inside the shop office to obtain a signature. When he returned and found that the truck had moved.
- On March 22, 2016, a snowplow with a non-functioning backup camera backed into a building at the National Renewable Energy Lab (NREL), damaging a railing and ramp. The contract required all snowplows to have a working backup camera and beacon light. Because the event was the latest in a series involving the same snow removal subcontractor, NREL began the process to remove the company.
- On March 15, 2016, at Idaho National Laboratory (INL), an ambulance collided with the rear of a fire engine when the vehicles were returning to the Fire Station after conducting a tour. When the fire engine (in the lead) slowed for wildlife crossing the road, the ambulance driver did not realize that the fire engine’s speed had changed and the ambulance hit the rear of the fire engine. All occupants were wearing seatbelts. Both drivers were taken to the hospital for assessment, and both vehicles were taken out of service.

- On January 12, 2015, a Nevada National Security Site (NNSS) worker was injured in a single car accident when he fell asleep at the wheel of a government car, crossed into the oncoming lane, and then veered off the pavement. He was taken to the hospital, kept overnight, and released with lifting and driving restrictions. Subsequent investigation and interviews with the worker determined the worker's extreme fatigue was the result of long work hours and a multi-hour commute, combined with driving the deserted road between the NNSS and U1A facility.

Conclusion

Vehicular accidents are the most common cause of workplace injury and death. The above examples of driving issues demonstrate the consequences of omitting any steps in safe vehicle shutdown as well as the importance of paying attention to the road for pedestrians, obstacles, animals and slowing vehicles. Many employees work long hours or multiple shifts without adequate rest or breaks and should be aware of their limits. Do not operate a vehicle when you are extremely tired. According to the National Sleep Foundation, 60% of drivers said they have driven a vehicle while drowsy, and a third have said they have actually fallen asleep at the wheel. Approximately four percent of drivers admitted to having an accident or near accident due to being too tired to remain alert. When driving fatigued or distracted, the stakes can be very high to include accidents that cause injuries, death, financial settlements, or even serving jail time. Be vigilant every time you get into a driver's seat.

Recommended Actions:

Lessons Learned:

- Drive Safely on Site:
 - Prior to entry – check tires, any attachments to vehicle are secure, lights are working properly, have proper training for specialty vehicles
 - After entry – buckle seat belt, adjust mirror, check gas level, verify gauges are functioning, check brakes
 - During operation – keep eyes focus on space around you including other vehicle/pedestrians, follow speed limits, maintain safe operating distance from other vehicles, use turn signals, note road maintenance issues and report them.
- Drive Defensively
 - Maintain proper attitude and awareness – be courteous and have considerations for other drivers, concentrate and be alert, do not drive when overly fatigued or emotionally distressed.
 - Foresight – anticipate potential traffic situations, be prepared to take corrective action
 - Knowledge and experience – be aware of carelessness and overconfidence even if highly experienced, seek out training if inexperienced on a vehicle type, use anticipation/reaction to be aware of constant changes that occur.
 - Scanning – keep eyes moving to maintain awareness, look ahead to avoid last minute decisions, use both rear and side mirrors to check traffic, check all sides at an intersection before proceeding
 - Blind Spots – turn your head when changing lanes instead of just relying on side mirror, be aware that other vehicles, bushes, trees or building can obstruct view at an intersection
 - Communications – always use turn signals, keep enough space between vehicles to allow time to stop, drive at constant speed to help other drivers maintain distances.
 - Animals – from late October through November, it is mating season for deer meaning that there is more deer activity near roadways from dusk to dawn. State highway guidelines suggest slowing down in areas with open fields or forests where deer live and feed.
- Distracted Driving
 - Legislation – be aware that many states have passed laws banning the use of hand-held cellphone usage and texting while driving, use hands-free set even if not required in your state, pull off road to dial or text while driving, let passengers make a call or text for you if needed.
- Road Rage
 - Aggressive driving – be aware that you can be cited if you commit an act that is a hazard to other drivers including failure to obey traffic sign, passing another vehicle on the right side, unsafe lane changes, tailgating or failure to yield to emergency vehicles.

- Defensive driving techniques – be constantly aware of driving conditions, plan and anticipate dangers by taking the right action to avoid accidents
- Stay calm – plan your trip and know the best way to get to your destination to avoid stress, listen to music you enjoy, respond with courtesy if provoked by another driver, do not honk horn or flash lights in response to provocation - compromise even if other driver is wrong.
- Attention to Detail
 - Safe shutdown - Ensure that the simplest of tasks such as performing a safe shutdown and parking of a vehicle, remove the key, set the parking brake, place an automatic transmission in Park and a manual transmission in Reverse.

Critical Decision(s): CD-0 to CD-4

Facility Type(s): All

Work Function(s): All

Technical Discipline(s): All

References:

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3. Law, Ian, “10 lessons I’ve learned about safe driving”, <https://www.wheels.ca/top-ten/10-lessons-ive-learned-about-safe-driving/>, November 28, 2009.
4. “Avoiding Vehicle Accidents”, DOE Office of Environmental, Health, Safety and Security, OE-3: 2016-08, December 2016
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6. Ryan, Kate, “As deer enter mating season, drivers should be more aware of road”, WTOP, October 3, 2017.