

June 2019

Dangers in Loading and Unloading Heavy Equipment

The construction season is in full swing across the country and throughout the Department of Energy (DOE) complex. Machinery loading and unloading is one hazard that often gets overlooked. Typically, construction equipment gets delivered to a construction site and then is off-loaded. Upon completion of the task that the machine was needed for, it is then loaded onto a trailer and removed from the site.

However, the activity of loading and unloading equipment creates a very serious potential accident should the equipment fall from the trailer. These types of accidents can result in a fatality or serious injury. The types of construction equipment that pose a hazard include, but are not limited to, excavators, compactors, loaders and mobile elevating work platforms.

In 2004 at the Savannah River Site (SRS), an excavator fell on a subcontractor resulting in a fatality (Figure 1). The typical weight of these machines is over 50,000 pounds. (See Reference 1)

In 2018 at SRS, there was an accident that involved a US Department of Agriculture Forest Service contractor loading a compactor onto a transport trailer and it subsequently fell off of the transport trailer ramp (Figure 2). The equipment operator sustained minor injuries. The weight of this machine is approximately 15,000 pounds. (See Reference 2)



Figure 1: Scene from Excavator Falling and Causing Fatality in 2004



Figure 2: Compactor Fall in 2018

In 2008, the Occupational Safety and Health Administration issued a Safety and Health Information Bulletin regarding the hazard of loading and unloading compactors that states:

“Loading and unloading roller/compactors onto and off of trailers posed a potential overturn hazard. Hazards were caused by skidding on the ramps, using wood blocks or planks as ramps, or loading/unloading a machine that was too narrow to span both units of the ramp.”

Title 10 Code of Federal Regulations Part 851 (Appendix A/Construction Safety) requires an activity hazard analysis prior to commencement of work and it must identify foreseeable hazards and planned protective measures. Once the hazards and risks involved in the task have been identified, the procedures and measures required to eliminate or mitigate them must be identified and implemented. Some basic safety measures that should be taken:

- Have the flatbed truck or trailer parked on level, stable ground and brakes set and motor turned off.
- Use an appropriate trailer and ramp for the loading/unloading of equipment (i.e. do not use make shift ramps).
- Make sure the trailer and ramp are wide enough for the mobile equipment being loaded.
- Make sure the trailer ramp is long enough to avoid steep angles when loading/unloading equipment. Refer to the manufacturers operating manual for machine specific requirements.
- The equipment operator should be experienced in operating the equipment being loaded or unloaded and should be trained in how to safely load or unload the equipment off trailers.
- Workers on foot around equipment being loaded/unloaded should be alert to the movement of equipment.
- Have a spotter that is wearing high visibility clothing (e.g. reflective clothing) to assist the operator in positioning the equipment while loading/unloading.
- Consider the use of warning cones/hazard tape or flagging personnel when equipment is being loaded/unloaded from a transport vehicle to alert all those in or near the area.

References

1. Type A accident investigation report “Subcontractor Fatality at the Pond B Dam Upgrade Project on July 26, 2004 at the Savannah River Site” - https://www.energy.gov/sites/prod/files/2014/04/f14/Type_A_Investigation_SavannahRiverSite_PondBDamUpgradeProject_2004_07_26_0.pdf
2. ORPS Report # EM-SR--SRNS-MOGEN-2018-0007: “Roller Compactor Rolls Off Transport Trailer Ramp”

Additional Resources

1. DOE Level 1 Accident Investigation Report, March 1, 2010: *Fatal Bobcat/Backhoe Accident at the White Bluffs Substation* <https://www.energy.gov/ehss/downloads/level-i-accident-investigation-march-1-2010-fatal-bobcatbackhoe-accident-white-bluffs>
2. U.S. Department of Transportation, Federal Motor Carrier Safety Administration, *Driver’s Handbook on Cargo Securement- Chapter 10: Heavy Vehicles, Equipment, and Machinery* <https://www.fmcsa.dot.gov/regulations/cargo-securement/drivers-handbook-cargo-securement-chapter-10-heavy-vehicles-equipment>