North American Transmission FORUM

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NATF Redacted Operating Experience Report

Bucket Truck Rollover

About NATF Redacted Operating Experience (OE) Reports

North American Transmission Forum (NATF) operating experience reports highlight positive or negative transmission (reliability or resiliency) experiences worth sharing for learning opportunities or potential trending. The overall goal is to help each other learn without experiencing the same issues first-hand. This sharing originates confidentially within the NATF membership.

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The NATF member company that submitted the initial restricted distribution OE report for this topic/event has approved the NATF to issue this redacted OE report.

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Topic

Bucket Truck Rollover

Description

A bucket truck rolled over on our right of way (ROW), resulting in severe damage to the machine, environmental impacts, and disruption to our company project. The roll-over of the truck had the potential for serious injury or fatality to a crew member and/or the public and severe impact to the environment.

Site and Crew

Three crews and two journeymen from a fourth crew were working on rerouting two lines on the same ROW. An environmental representative was overseeing the work on the day of the incident. Crew 1 and crew 2 started the job, and crew 3 joined the job at a later date. Crew 3 was initially scheduled to replace danger poles on the same lines during the project; however, they were reassigned to assist with the reroute project.

Weather

Weather in the area was average for the time of year. A reported high of 81 degrees Fahrenheit and a low of 54 degrees with no precipitation.

Incident

At 08:30, all crews gathered for the job for the day, which consisted of changing poles, removing conductor, stringing conductor, and stringing fiber. Pictures and timeline are provided on subsequent pages.

At 13:18, TLM crew 2 setting poles

At 13:32, TLM crew 2 installing crossarm

At 18:16, the stored boom between conductors is greater than 50-feet above ground for tool theft protection. Note that truck is set on a double slope, with an approximate 5-degree drop from back of truck to front of truck and a 5-degree drop from curb side (passenger side) to street side (driver side).

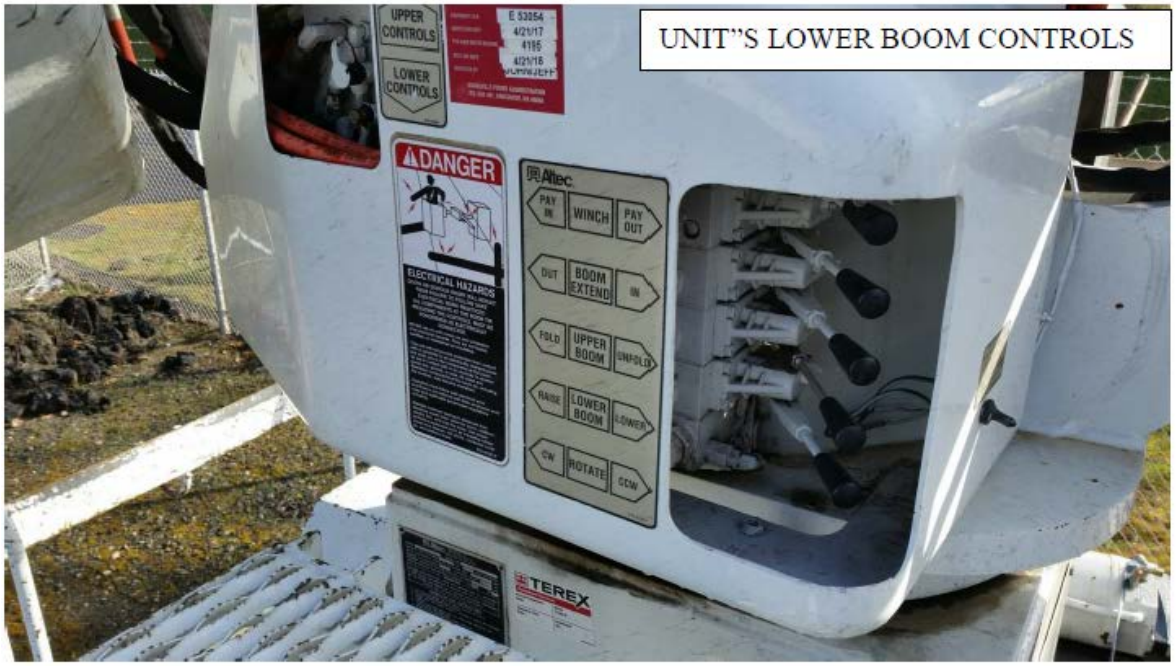
Reference: NATF-OER-448

18:23: last known photo of incident site looking to the east

At approximately 19:00, the crew 3 foreman stopped into the splice trailer to check the work status and learned they were about to complete the splicing and were close to proceeding to next step. At approximately 19:10, the crew 3 foreman volunteered to reposition the bucket truck.

At approximately 19:15, the crew 3 foreman went to the bucket truck and found it locked. He then proceeded to the key lock box and removed the lock, retrieved the bucket truck key, unlocked the bucket truck, started the truck and engaged the power take-off (PTO).

At approximately 19:18, the crew 3 foreman proceeded to the unit's lower controls located on the pedestal of the unit above the truck bed. Before lowering the boom, he realized he did not have the proper PPE and left the controls to retrieve his PPE out of his work truck.



At approximately 19:22, the crew 3 foreman returned directly to the tailboard of the bucket truck following the interruption to retrieve the PPE. Having lost his place in the process and failing to notice the un-stowed boom, he proceeded to raise both high-side outriggers and then continued to the front low-side outrigger. Upon initial retraction of the front low-side outrigger, the crew 3 foreman noticed the truck starting to rapidly become unstable and began rolling toward the low side.

At approximately 19:23, the boom descended toward the low side, contacted two conductors and the fiber line, and pinned them toward the ground. The bucket truck came to rest on to the street side (driver side) with the boom falling across a barricaded paved walking trail, with the upper boom and bucket landing in heavy brush.

At approximately 19:23, crew 1 and crew 3 heard the noise and felt the collision and proceeded to respond to the scene. After verifying no injuries, both crews notified appropriate leadership and commenced spill response.

8/30/2017 20:35

8/30/2017 20:37

Lessons Learned

At least four general error traps were present when this event occurred:

1. **Overconfidence.** Bucket truck operations are considered core knowledge for journeyman linemen. As a recently promoted foreman 1, the crew 3 foreman who initiated the direct cause was more than competent to perform this "routine" job task. He had done this operation on similar bucket trucks before, but not on this bucket truck.
2. **Distractions.** The crew 3 foreman was on the truck bed to lower the boom in preparation for moving the truck. He interrupted the process to retrieve his PPE but returned directly to the outrigger controls.
3. **End of an Extended Shift.** The crews started that day at about 06:30 when they left for the work site. The event occurred at approximately 19:22.
4. **Vague/Poor Work Guidance.** Our company has no standards or guidance on overnight bucket-stow height for unsecured worksites.

An additional error trap specific to this incident was the numerous types of aerial boom equipment owned and operated by our company with different controls and various degrees of interlocks.

Actions Taken/Planned

1. Include discussion at daily (J1) briefs for the proper storage for aerial boom equipment.
2. Require a peer check to be conducted when setting up or moving any aerial boom equipment.
3. Place a hanging tag that includes a warning label over outrigger controls whenever the boom is out of the stowed position on our company-owned and rented aerial boom equipment.
4. Identify all company-owned and rented aerial boom equipment with outriggers and inspect whether each has an interlock to prevent outrigger movement when the boom is not fully stowed.
5. Design and install interlocks, with manufacturer approval, on all equipment identified in the "Extent of Condition" section below to prevent outrigger retraction when the boom is not fully stowed.
6. When renting and purchasing aerial boom equipment with outriggers, set preference that equipment has an interlock to prevent outrigger retraction when the boom is not fully stowed (unless the crane is rated for pick and carry operation).
7. Review incident analysis summary with all field crews.
8. Specify a required program for qualifying authorized persons that operate aerial boom equipment; include when requalification needs to take place.
9. Implement a required program for qualifying authorized persons to operate aerial boom equipment. Allow only qualified operators to operate the equipment.
10. Implement identification of critical step processes in highest-risk job tasks through a safety procedural document.
11. Implement observations specific to proper mobile equipment operation and other associated critical task on annual basis for crew members.

Reference: NATF-OER-448

Extent of Condition

Our company owns and maintains a number of vehicles and machines with boom equipment that utilizes outriggers to ensure stability during boom operation. Below a summary of our company's boom equipment:

1. Same condition, same equipment
    - Currently have 30 other bucket trucks that may or may not have an interlock preventing outrigger retraction with the boom out of stow.
2. Same condition, similar equipment
    - Currently have 60 cranes and derricks that may or may not have an interlock preventing outrigger retraction with the boom out of stow.
3. Similar condition, same or similar equipment
    - Other aerial boom activities that rely on correct operator actions (instead of interlocks or similar) to prevent potentially dangerous situations.