Summary of Incident
On June 14th, 2014, the Superintendent of a Handcrew sustained facial lacerations and received many stitches to wounds on his face after an ATV rolled back on top of him while attempting to load it into the back of a pickup truck by riding it up a ramp. The ATV’s frame landed on his helmet, shattering it, and the shards of plastic caused many facial wounds. ATV/UTV use is common now with USFS Handcrews and Overhead, and by reading and learning from this incident we can try to prevent similar accidents in the future.

The day started uneventful, with the crew training for Fire readiness with a field exercise and “training spike-out” overnight trip. The crew does this yearly to familiarize themselves with spike activities; build cohesion; and evaluate readiness in a field situation. The ATV was new to the crew, they had not had one to use before, and they had not trained with it yet. Several people on the crew, including the Superintendent, were licensed on their OF-346 for ATV use, though it had been a while since the Superintendent had been on one. He has extensive experience on street motorcycles. Some of the crewmembers even had quite a bit of experience on ATV’s. In the days leading up to this, the crew had discussed the need for fresh ATV training, and one of the reasons for bringing the ATV to this spike was to practice use and loading/unloading. That morning, a Squad Boss for the crew with ATV experience had attached the ramp provided and decided it was too short to ride the ATV up into the truck. As the ATV had a winch, he winched it into the truck, which is the preferred method according to the Health and Safety Code, FSH 6709.13.23. The crew loaded up and went out to the field, with the Squad Boss again mentioning his concern to one of the Captains in passing that he thought the ramp was too short. There had been discussion about the length of the ramp in the previous days, and the discussion was had to make sure the truck was using a berm to be able to use the short ramp safely. Since it was the only ramp available, the crew assumed it met the specifications required, and tried to mitigate the situation.

At the training location, the ATV was unloaded by rolling it down out of the truck, with no rider, and was used by the Superintendent throughout the day to check on the crew, and recon the training area. At about 1600, the Superintendent started looking for a place to load up the ATV into the truck. The ATV was to be used for loading and unloading training early the next morning. The Superintendent stated later that he “did not want to interrupt the crew” that was training, so he went alone to a location to park the truck and attach the ramp. At this time, the crew did not know exactly where he was doing this, as he was out of their sight, but within radio distance. The Superintendent parked the truck in a location that had the front end facing downhill a bit, increasing the already steep angle of the ramp. The Superintendent tried 2 times to ride it up the ramp, unsuccessfully each time. He finally gave it more gas, and it got up to the top of the ramp, and rolled backwards right over the top of him, pinning his helmet between the ATV frame and the ground. The helmet took the impact, and shattered into many sharp plastic shards, cutting his face in multiple places. At this time, the crew did not know anything was wrong, as he had no spotter. The superintendent was finally able to extricate himself out from under the ATV, and call on the radio for help. The Crew EMT’s responded quickly, and noticing the severity of his wounds, and the mechanism of injury, called Dispatch for assistance. The closest ambulance
Lessons
Six Rivers National Forest

Summary of Incident continued:

was over 1 hour away, so they got the bleeding stopped, discussed possible Air transportation, and started transporting
the Superintendent in a FS truck to the hospital, while giving updates to
the Forest Safety Officer who was waiting at the hospital to arrive. Upon
arrival at the hospital, the Doctors cleaned out his wounds and stitched
them up after pain medicine was given. The Emergency Room Doctors
remarked that one of the deep cuts was very close to his eye, and he was
lucky to have not cut it. The Safety Officer started collecting info for the
CA-1 and CA-16 to be completed and issued the next day, and made the
appropriate notifications that night. Around 2330, The Superintendent was
released to a friend to drive him home.

What Went Right

The Crew had a medical Standard Operating Guideline, and it worked. Each person involved knew their role, duties, and
responsibilities. The crew also had fully stocked medical equipment on their truck, including Bloodborne pathogens pro-
tection and gauze and bandages to stop bleeding. Having qualified EMT and First Responder personnel on the module
also reduced the time to stabilize the superintendent and to get him to the hospital, which was approximately 1 1/2 hours
away. The Crew had established radio reporting procedures and followed them, this reduced confusion, and also fol-
lowed up with status reports to the Forest Safety Officer by cell phone to be relayed to the ER Doctors on the way in to
the Hospital.

The Forest Hospital Liaison Plan worked as designed, with the Safety Officer arriving ahead of the patient to assist with
any registration paperwork, and to ensure the hospital staff understood about the difference between federal OWCP and
State Comp claims. This minimized the interruptions in medical care as the patient did not have to deal with that aspect
of the accident in the ER. A knowledgeable person on OWCP claims and processes is essential to work as an advocate
for the injured person. This helps assure quick access to medical care, and appropriate follow up.

Lessons Learned

Training and qualifications: Anyone riding an ATV/UTV on official business must have taken and passed the ATV
Safety Institute training and recertify every 3 years, as well as review the MTDC “All-Terrain vehicle safety” DVD.
This must be on their OF-346, Government License. If an employee does not ride an ATV at least 16 hours per year,
it is up to the EMPLOYEE to advise their supervisor that they need a check ride. Also, if a supervisor knows that
an employee has not ridden the 16 hours, they must follow up with the check ride, or not allow the person to ride.

The ATV Safety Institute training advises that loading and unloading an ATV is very dangerous and can result in serious
injuries, the Health and Safety code says the same thing. (FSH 6709.13.23) Yet Loading and Unloading are NOT
taught in the ATV safety class. An experienced ATV instructor should be consulted for additional training on the
safe loading and unloading techniques with ATV’s before use. In this incident, it appears that a check ride was
needed, but was not completed.
Lessons Learned Continued

Personal Protective Equipment:

**Helmets:** The most recent version of the Health and Safety Code, (6709.11-13.2-13.23, 2013 version) has the current specifications for ATV helmets. (DOT; ANSI Z90.1; or Snell SMF certified and marked). The helmet used on this day was so old it had no markings, it was at least 20 years old, and designed for snow use, not ATV use. The age and materials of this helmet contributed to the severity of the injuries sustained. **There were new helmets at the District office, but they were not in a place where the crew could check one of them out, when they checked out the ATV and ramp.**

Any helmet older than 5 years old showing significant wear, or unable to determine manufacture date of, shall be replaced. *(The helmet used was of unknown date, was worn, and was never designed for ATV use)*

The Health and Safety Code specifies many other articles of PPE as well, such as Gloves; First aid kit; long pants; footwear; eye protection; etc. None of these appear to have been a factor in this incident, as all were worn or available.

**Equipment:** Ramps and straps: The ramp used at first glance looked fine, perhaps a bit light, but “These are the ones we have used for years” was how one crewperson put it. Actually, after looking up the specifications, the ramp was lacking, but no one on the District realized it at the time. Current qualifications for ATV loading ramps in the Health and Safety Code are as follows: All ramps must be a minimum of 72 inches long. **The one used here was 68” long**

Minimum ramp loading capacity for ATV’s is 1200 lbs. **This one was unmarked as to capacity, however, some of the small traction bars were bent or had broken welds, possibly a sign of too heavy vehicles using it?**

Two-piece ramps will be a minimum of 10 inches wide **This one met that specification**

Ramps fabricated of aluminum must have a driving surface with closely spaced crossed members or mesh construction with high-traction surface. **It is debatable if this ramp met this specification**

If available, a properly rated winch is recommended to pull an ATV into the back of a transport vehicle. **This ATV had a working winch, in fact, the ATV had been winched into the vehicle that morning.**

Loading ramps must be secured to transport vehicle with two tie-down straps, chains, steel cables, or mechanical fasteners, and capable of supporting the ATV and associated equipment. **This ramp was only attached at the time of the accident with a single 1” wide cloth strap.**
Lessons Learned Continued

Loading and Unloading: The Health and Safety code (FSH 6709.11 13.23) states this on loading and unloading ATV’s:

Loading and unloading are high hazard operations and injuries are likely to be severe. For this reason, all required PPE shall be worn while loading and unloading. This message should be added into all ATV JHA forms and Standard Operating Guidelines about ATV use.

Proper positioning of the truck the ATV is to be loaded into is also important. If you can, find a berm or dirt pile to use as a ramp, to lessen the angle of approach, or place the rear wheels of the truck into a slight ditch or depression to lower the rear of the vehicle.

REMEMBER: Winching an ATV into the back of a truck is the preferred method if you have to put one in a truck. A trailer is even better if available. If you do not have a winch, use a come-along. If you have neither, use lots of people to push it up in there. Riding an ATV up into the back of the truck should be a last resort method of loading. Also, it is never permitted to load an ATV up over wheel wells in a truck. It must fit in between or not touch wheel wells.

Loading ramps must be secured to transport vehicle with two tie-down straps, chains, steel cables, or mechanical fasteners, and capable of supporting the ATV and associated equipment. This ramp was only attached at the time of the accident with a single 1” wide cloth strap.

To meet the specifications, Secure the ATV using 4 tie downs. (2 front, 2 back), 1200 lb. minimum breaking strength, cam ratchet buckles only.
Lessons

Human factors:

This had a lot to do with the events leading up to this accident. Chain-of-command, and crew cohesion, are both key concepts with Fire modules. A first or second year crewperson does not want to be the one to speak up and second guess an experienced Crew Superintendent. Even more experienced firefighters will usually defer to an superintendent under normal working conditions. So, no crewmember wanted to mention the Superintendent working alone to go load the ATV, even though at least 2 crewmembers later expressed worry that he was loading it alone. “**IF you see something, SAY Something**”. Only a few people even realized that the Superintendent was loading it by himself.

The Superintendent himself **expressed the fact that he should not have been loading the ATV alone, and that he should have winched it up into the truck after the first unsuccessful attempt**. But even he didn’t want to “interrupt the Crew training”.

Others from Engine Crews on the District **had in the past expressed concern about the length of the ramp being too short, but did not want to cause issues by mentioning it**. An non-confrontational way of bringing this up would have been looking up the Health and Safety Code standards, and bringing them up to a District Safety rep, or another Supervisor.

**Conclusion:** Many departments of the USFS have recognized the unique advantages to using ATV’s in daily work, on Fires, and on projects. The use of ATV and UTV vehicles will probably continue or even become more prevalent in the future. It is essential that our employee be empowered to speak out on anything they believe is unsafe, and empowerment is an important part of our Safety Journey. Employees need to feel safe to mention safety issues before they become incidents or accidents. Thorough knowledge of the Health and Safety code chapters covering ATV/UTV use should be included in all ATV JHA forms, and discussed at tailgate safety sessions before and after using ATV’s. With proper training, oversight, and equipment, we can continue to use these unique pieces of equipment safely to help us on our journey to restore resiliency into our National Forests.

People helping people—lending hands for our safety.