



2023 Incident Review Summary



“The purpose of computing is insight, not numbers.”

–Richard Hamming

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Introduction

The information in this report comes from wildland fire incidents—from various entities—submitted to and gathered by the Wildland Fire Lessons Learned Center (LLC) in 2023. The primary source of this data is incident reports (Rapid Lesson Sharing, Facilitated Learning Analysis, Serious Accident Investigations, etc.). Most of these reports have been posted to the LLC’s [Incident Reviews Database](#). SAFENETs and other data sources have been included when no full report was produced or could not be located.

In 2023 we collected information on over 140 operational incidents.

We have examined these incident reports and learning documents, compiled a few numbers and extracted specific lessons. It is our aim to present this information in a way that empowers us all to improve future operations. We hope you turn these lessons into learning.

Exercises

This icon identifies specific discussion prompts related to the material.





Fatalities

Based on available records, the Wildland Fire Lessons Learned Center recorded **13** wildland fire-related fatalities in 2023, **twelve less** than 2022.



Exercise:

Use the following prompts for discussion:

- What do YOU think drives the annual variation in numbers?
- What specific actions can you take to “honor through learning”?

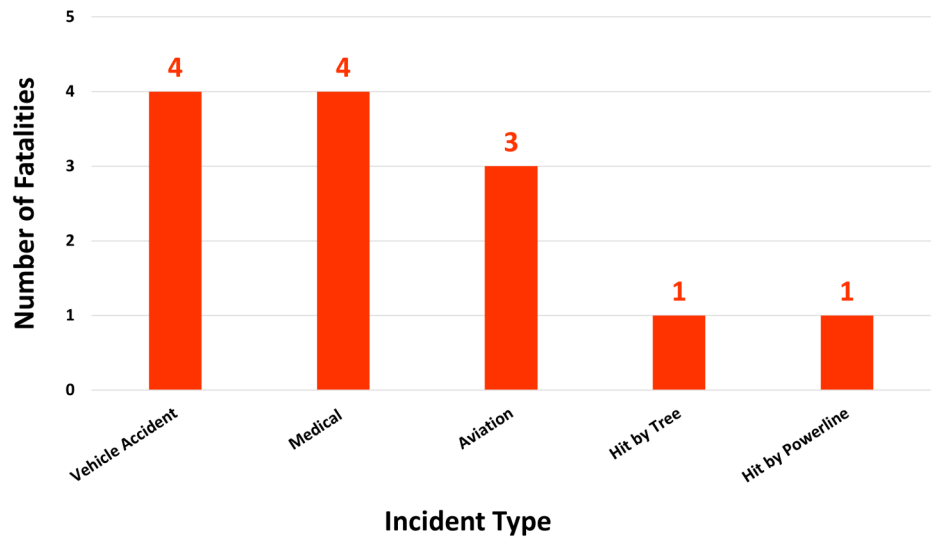


Fatalities

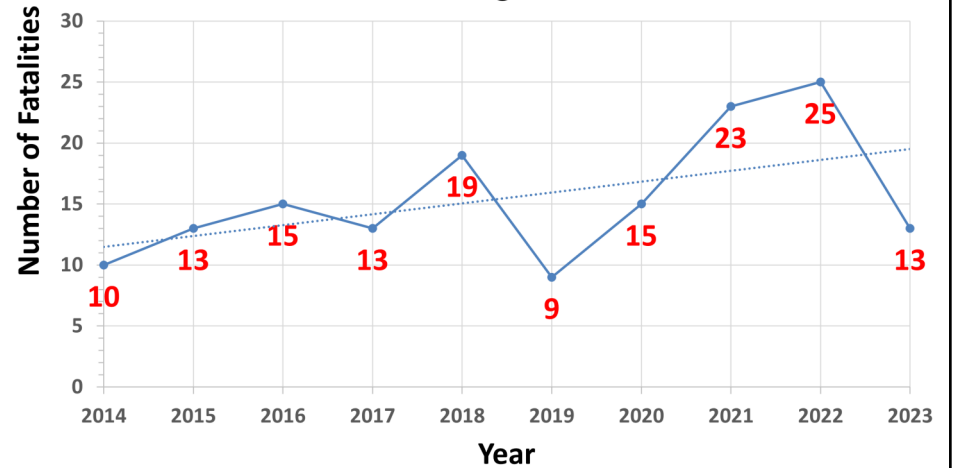
13

- 4 Medical
- 4 Driving
- 3 Aviation
- 1 Hit by Tree
- 1 Hit by Powerline

2023 Wildland Fire Fatalities by Incident Type



Number of Wildland Firefighter Fatalities by Year 10 Year Average = 15.5



Only two of the past ten years have a lower number of fatalities than 2023.



UTV Incidents

As we reflect on the increasing number of UTV related incidents, we must not forget about the *benefits* we have seen as a result of more UTVs on the fireground. Consider the Risk/Reward equation specific to UTVs.



Exercise:

Use the following prompts for discussion:

- On the fireground, what are some of the most USEFUL tasks you have seen UTVs perform?
- What are some of the most dangerous situations you have seen UTVs involved in?



Compared to previous years, there were a high number of UTV related incidents reported in 2023.

2023

- 6 UTV Rollovers
- 4 UTV Fires
- 1 Leg Injury

UTVs have streamlined many aspects of fire related work. As UTVs have become more common on the fire ground it makes sense that we are learning about their associated hazards.



Injuries

In most cases the use of seatbelts and DOT approved helmets seem to prevent serious injury—but the danger involved with UTVs is significant: one of the wildland fire **fatalities** that occurred in 2023 was a UTV accident in which the operator was ejected.



UTV Fires

UTV fires continue to occur. There is a variety of causes. Earlier this year we published an issue of [Data Points](#) addressing the commonalities and primary lesson from a review of 10 years of UTV fires: Equip All UTVs with an Accessible and Serviceable Fire Extinguisher.

Don't Forget About ATV Danger

As we have seen more reports involve UTVs we have seen a correlating drop in reports involving ATVs. We did receive two ATV related reports in 2023, both illustrating the serious risk involved in fire related ATV use:

[ATV Near Miss with Fire](#)

[ATV Rollover Fatality](#)



Burn Injuries

We work around fire and regularly use flammable liquids. It is easy to forget the level of risk involved with this combination. We must work hard to remain cautious and make prudent decisions.



Exercise:

Use the following prompts for discussion:

- Prepare a briefing about using a drip torch—what risk related items will you cover?
- How many ways can the simple task of re-fueling equipment lead to a burn injury?



16 Separate Burn Injury Incidents Reported in 2023



What Burns Us?

- The most common scenarios resulting in burn injuries continue to be drip torch use and falling into hot ash or active flame.
- Direct contact with flames and the ignition of flammable liquid (other than drip torch fuel) also regularly occur.

[Harvey Prescribed Fire Drip Torch Burn Injury](#)

While using a drip torch a firefighter became entangled in briars. The drip torch flame went out but continued to drip fuel, soaking their pant leg. Ground fire reached the firefighter and ignited their pant leg resulting in a second-degree burn.

Drip Torch

[Smith River Complex North Burn Injury](#)

A firefighter suffered burn injuries to the hand and forearm (estimated at 9%) after falling down a slope during burn out operations.

Fall

[Ida Fire Burn Injury](#)

A firefighter was using a backpack blower to improve fireline when the blower caught fire. The firefighter threw off the blower and realized their line pack and fire resistant shirt were also on fire. The line pack and shirt were soaked with gas. The firefighter received several burns on their back and under one arm.

Fuel



Hit by Tree and Chainsaw Cut Incidents

In 2023, tree strikes occurred in **seven** different states. Trees twice struck UTVs. In multiple instances trees fell toward handcrews and engine crews. It is important to remember that tree strikes happen in a variety of locations and conditions.



Exercise:

Use the following prompts for discussion:

- What are your personal lessons related to escaping the stump?
- What are your personal lessons related to chainsaw kickback?



12 Hit by Tree Incidents

- 6 During Tree Felling Ops
- 6 Non-Chainsaw Ops

Of the **SIX** tree felling operations resulting in tree strikes:

- In **FOUR** instances the sawyer was hit.
- In **TWO** instances the swamper was hit.

Two sawyers struck AFTER the tree hits the ground.

When the tree hit the ground, it bounced back up. One of the tree's split top arms broke off, came back, and hit the sawyer on the side of the head.

[Eagle Prescribed Fire Tree Strike](#)

The faller saw the tree hit the ground and turned to retrieve his saw. The top of the tree broke off and fell back toward him—striking him in the helmet.

[Ridge Creek Fire Tree Strike](#)

4 Chainsaw Cut Incidents

- 4 to Sawyers
- 0 to Swampers (5 last year)

Of the **FOUR** Chainsaw Cut incidents:

- **TWO** involved chainsaw kickback.
- **TWO** involved the sawyer slipping and falling.

Provide care for obvious injuries AND perform a full body check.

In this incident, due to the sawyer's adrenaline response and other factors, a full body check was neglected. It was only discovered three hours later at the hospital that Sawyer 1 had also sustained a chainsaw impact on the left side of their body during the fall, resulting in an additional six-inch cut.

[Anvil Fire Chainsaw Cut](#)



Entrapments

In 2023 over 90% of the reported entrapments occurred during initial attack. This was also true in 2022.



Exercise:

Use the following prompts for discussion:

- What elements of initial attack make us vulnerable to entrapment?
- As an entrapment situation develops, what factors would you consider in deciding to either stay in place or try to escape?



“For those who were involved in the initial attack of the Lone Pine Fire, it took several days and several conversations to ultimately call their experience an ‘entrapment.’ They knew it was life-threatening and they knew it was dangerous. But calling it ‘an entrapment’ seemed too extreme.”

[Lone Pine Fire Entrapment](#)

In 2023 the LLC recorded 12 separate entrapment events. Seven of those entrapments involved equipment becoming disabled and impacted by fire (5 engines, 1 Dozer, 1 UTV).

The entrapments of 2023 occurred in the following scenarios:

- 9 during initial attack engine operations.
- 2 during initial attack dozer operations.
- 1 during firing operations from a UTV on a prescribed fire.

The dozer operator deployed the fire curtains within the cab. The operator reported they initially wanted to leave the cab during the entrapment, however continuous communication with FF1 is what prevented them from leaving the enclosed bulldozer cab.

[SKU August Complex Dozer Entrapment](#)

An engine became immobilized (stuck in neutral). The fire made a significant run toward their location. Considerations were given to seeking refuge in the cab, deploying fire shelters in front of the engine, or walking away from the engine and continuing on foot up the road.

[Williams Fire Entrapment](#)

“We had two choices, drop packs and run for it—or deploy here.”

[Lone Pine Fire Entrapment](#)



Lessons from the Learners

This section includes lessons from those who were directly involved in the incident.



[Whiskey Creek Fire Burn Injury](#)

Two firefighters were injured during a scramble as a hazard tree was felled.

Lesson: Patient Condition is Separate from Extraction Method

The MIR is based solely on patient condition. HOW the extraction will happen is not part of the decision criteria about color/priority. Adjusting the priority based on what you think is available, possible or prudent upends the intent of the MIR. The MIR should paint an accurate picture of the situation which allows command and support staff to orchestrate the best available extraction support.



[Noonan Fire Powerline Incident](#)

Out of the corner of their eye they saw an electrical arc flash out of the bottom of the truck and heard a loud pop. Visibility was impeded due to the smoke, which kept the engine crew from seeing some low-hanging power lines.

Lesson: Know the Basics on Powerline Contact

If lines drop across your vehicle and the vehicle is operational drive away if possible. If the vehicle is not operational, remain in the vehicle until advised by utility personnel. If you must leave the vehicle (fire), you need to get out without touching the car and the ground at the same time.



[Blum Fire Transport Burn Damage](#)

During a hectic initial attack (including structures threatened, arcing power pole, a vehicle wreck, and a civilian heart attack), a large clearing in the black that appeared to have little to no re-burn potential was identified as a parking area. A dozer transport parked in this area. Shortly after unloading the dozer, the transport unit caught fire.

Lesson: Have a Checklist

Utilizing a systematic process such as a checklist not only improves productivity, but also helps us maintain consistency and create calm in a hectic environment. A checklist for parking in the black should include a complete walk-around of your vehicle.



Lessons from the Learners

This section includes lessons from those who were directly involved in the incident.



[Shearwood Creek Fire UTV Hit by Tree](#)

The dozer operator lost visual of UTV lights after the UTV went downslope. The dozer progressed and made the sharp right turn, inadvertently shearing a 16" DBH 100' tall pine tree. The operator saw the tree fall in front of the dozer. He got out of the dozer and saw that the tree had landed on top of the UTV and flipped it over on its side.

Lesson: Get Visible

The UTV was the only viable source to scout the path to where the equipment was needed. The UTV was equipped with stock lighting. How do you make yourself more visible at night?



[Magnetic Safety Light](#)

Crew 32 Foreman noticed a hotshot crew using a type of light that was easily mounted to their UTV with a magnet. The Crew Foreman asked the IHC Superintendent about the light and where to purchase them. Crew 32 now uses the lights for a variety of situations including: UTV night ops, signaling aircraft, and marking locations during emergency medical scenarios.

Lesson: Notice and Adapt

Be Aware – Notice how other people operate and adapt to improve your own operations. Be Nice – Talk with others and share best practices. Take Action – Do some research; find a safety light that works for your crew; get some and use them.



[Compartment 68 UTV Rollover](#)

Two firefighters were driving up a hill in a UTV when the back passenger tire (rear right) sunk into a rut—and the front of the machine raised up. When the machine leaned back, the straps holding the tank into the bed broke. The machine tipped to the right and rolled onto its side.

Lesson: Inspect Straps and Buckle Up

Both firefighters were wearing seatbelts and DOT helmets. Both said had they not had their seatbelts on, they likely would have sustained serious injury. The passenger could have easily slipped under the machine, and the operator could have fallen towards the passenger. Both firefighters credited the seatbelts in preventing injury.



15 Years of UTV Related Incidents

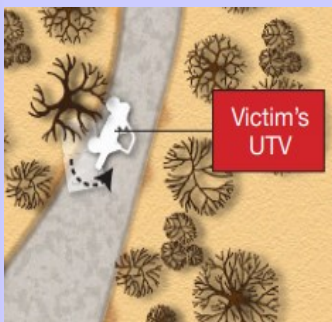
When we see a dramatic change in numbers, it's important to consider how we can make the information useful. We may not always know why numbers changed, but we can always use the opportunity to evaluate and improve specific operations and practices.



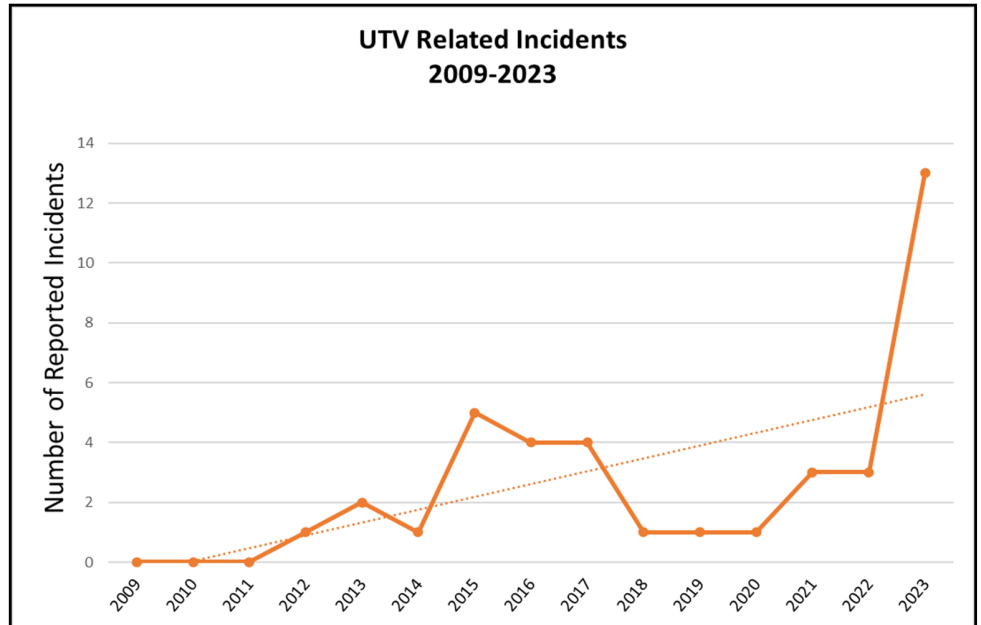
Exercise:

Use the following prompts for discussion:

- Debate the “why” of the 2023 increase in UTV related incidents.
- Does a planned event (Rx Fire) reduce the risk involved with UTV operations?
- How can YOU improve risk management related to UTV operations?



2023 showed a dramatic increase in the number of UTV related incidents.



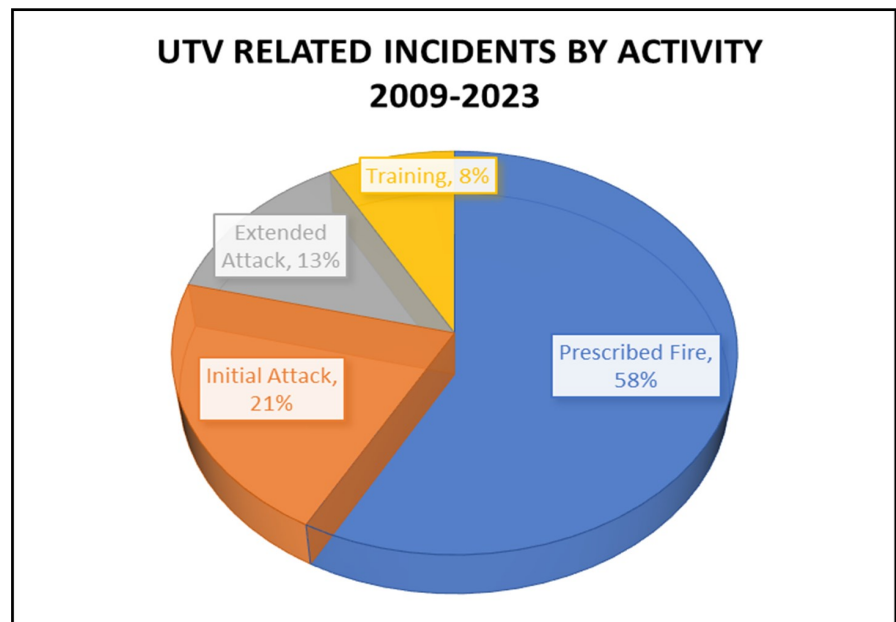
The graph above shows 15 years of UTV involved incidents, including rollovers, entrapments, equipment damage, and tree strikes.

Fatalities

In the past 15 years we have recorded **two** UTV related Fatalities:

2021 [Pigeon Creek Prescribed Fire Fatality](#)

2023 [Ionia Fire Department Fatality](#)



Over the past 15 years, the majority of reported UTV related incidents have occurred during prescribed fire activities.