2018 Incident Review Summary

Make it Matter
1. Introduction
The information in this report comes from wildland fire incidents—from various agencies—that were submitted to and gathered by the Wildland Fire Lessons Learned Center (LLC) in 2018. The primary source of data is accident reports (FLA, RLS, SAI, etc.). Most of these reports have been posted to the LCC’s Incident Reviews Database. SAFENETs and other data sources have been included when no actual report could be located. This year we collected information on 160 incidents. We have combed through these reports and extracted specific lessons and compiled a few numbers.

Use this information to inform your future operations. Turn these lessons into learning.

Throughout this report, this Action Icon identifies training curriculum related to the topic. If you are an instructor, you will need to look at each exercise ahead of time to pull up videos or to print reading material.
2. Drawing the Line of Duty

We recorded the work-related death of 19 firefighters in 2018. But not everyone is on the same page about which ones should be considered a “Line of Duty Death.” Everyone agrees that if you are overrun by fire or get hit by a tree on the fireline—that is death in the line of duty. But what if a fire crew member doing project work begins convulsing, goes unconscious, and is pronounced dead at the hospital? What if a contractor gets home from a fire assignment and dies the next day due to complications from pneumonia? Tough questions. But for us here at the Lessons Learned Center we list them all because we are concerned with LESSONS—not numbers. Each of these tragic instances provides an opportunity for collective and individual solemn introspection.

Exercise (30 minutes)

In small groups discuss these topics:
- What does the term “Line of Duty Death” mean to you?
- What are the lessons from a non-typical firefighter death?
- Should we honor people differently based on how they died?

3. Chainsaws and Drip Torches

In 2018 we collected 16 different reports related to Chainsaw Operations and 9 related to Firing Ops. Is that proof of the numerous poorly trained operators out there—OR flat out amazing that the number is so low given the amount of time we spend running saws and lighting things on fire?

At least we get to choose our perspective!

“Chainsaw Ops” Incidents in 2018

<table>
<thead>
<tr>
<th>Who</th>
<th>Where</th>
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<tbody>
<tr>
<td>Sawyer</td>
<td>Abdomen</td>
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<tr>
<td>Sawyer</td>
<td>Shoulder</td>
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<tr>
<td>Sawyer</td>
<td>Thigh</td>
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<td>Swumper</td>
<td>Forearm</td>
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<td>Swumper</td>
<td>Leg</td>
</tr>
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<td>Instructor</td>
<td>Hand</td>
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“The poison oak vine grabbed the chain and pulled the cut tree down into the chainsaw bar, pushing the bar into the sawyer’s leg about four inches below the left knee. The saw’s teeth grabbed the sawyer’s saw chaps and rolled them from the outside inward.”

Taylor Creek Chainsaw Cut
“During the burnout operations, a sudden wind shift and explosive fire growth happened and at about 1733, personnel were cut off from their escape routes. Most of the firefighters were able to move back to their vehicles to exit the area. However, six individuals farther down the dozer line were forced to run in front of the advancing flame front, through unburned fuels, to a nearby dirt road for approximately one mile...

Mendocino Complex - Ranch Fire Burn Injuries and Vehicle Damage

Exercise (30 minutes)

Individually write down your answer to these two questions:
1. What makes chainsaws dangerous?
2. What does “Playing with Fire” mean to you?
Discuss your answers with the group.

“I hurdled over the fence, the tool in my pack caught the fence, I fell face down.”

Camp Fire Entrapment Burn Injuries

While conducting firing operations a hand-throw firing device ignited in a pouch on the firefighter's web gear.

Edison RX Firing Device Incident

Playing With Fire?
The Burn Injury was a drip torch burn to the calf.
Hit by Trees happened while holding line.
Equipment Burn Damage was a vehicle burnt by spots and a pack destroyed when an ignition device ignited (in the pack).
Entrapments were rapid fire growth during ignitions.
4. Tree Trauma

Hit by Tree events are a difficult topic. We have had a series of tragedies in recent years. We’ve endured eight fatalities in the last four years. **We’ve had one hotshot die each summer for the past three years.** Each instance is heartbreaking. These events are sometimes difficult to process because there is often a feeling of inevitability around the issue of wildland firefighters being struck by trees.

How do we make these events matter?

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
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<tbody>
<tr>
<td>Michael Hallenbeck</td>
<td>2015</td>
</tr>
<tr>
<td>Justin Beebe</td>
<td>2016</td>
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<tr>
<td>Ted Collett</td>
<td>2016</td>
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<tr>
<td>Matthew Beck</td>
<td>2017</td>
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<td>Trenton Johnson</td>
<td>2017</td>
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<tr>
<td>Brent Witham</td>
<td>2017</td>
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<tr>
<td>Brian Hughes</td>
<td>2018</td>
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<tr>
<td>Matthew Burchett</td>
<td>2018</td>
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</tbody>
</table>

“The butt end of the tree hit the faller as it jumped backwards off the stump and swung uphill almost 25 feet.”

**Taylor Creek RLS**

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Is it possible to have a “Green” patient, but a “Red” evacuation?

Can you minimize risk by Short-Haul versus long carry out in difficult terrain?

**San Antonio Fire FLA**

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**Double Medevac: Two Firefighters Hit by Falling Branch**

Facilitated Learning Analysis 2018

**Exercise** (30 minutes)

Study this page.

Identify what has the most meaning for you. Write down a few notes on WHY your selection has meaning.

Compare your answers with others.

Discuss these two questions:

- What makes an event have meaning for us individually?
- What makes an event NOT have meaning?
5. How We Roll

2018 saw 17 reported Rollover Incidents. Mostly Water Tenders and Dozers (5 each). The others were chase vehicles, an Engine, a UTV and an ATV. Almost all of the rollovers involved slipping off the road shoulder.

We move big heavy things around on dirt roads under difficult conditions while stressed and tired.

Dozers and Water Tenders accounted for 59% of all reported rollovers in 2018.

“...he began to feel the back of the Tender pulling him sideways as the Tender began to slide off the road.”
Cougar Creek Fire Water Tender Accident

“...dozer slipped off the edge of a logging road and tumbled down end-over-end...”
Sugar Pine Fire Dozer Rollover

“...he became distracted and the truck drove straight off the road.”
Ferguson Fire Water Tender Rollover

“...it left the road on the downhill side and rolled over.”
Miles Fire Water Tender Rollover

“...passenger side front wheel traveled off the edge of the road, and the engine departed the roadway, and rolled.”
Fawn Fire Engine Rollover

“There were three slip locations, spread over several hundred feet, where Dozer 1 left the trail prior to the rollover.”
Ferguson Dozer Fatality

Exercise (30 minutes)
Study the quotes above. Individually write down your answer to this question:

What are all the reasons you can think of why we might “slip off the road”?

Compare your list with others. Discuss ways to prepare for and prevent rollovers.

From the 2016 Incident Review Summary

Heavy Equipment Rollover
We often push equipment limits. There is often perceived urgency. What is desired and what is possible are not always clear to those involved. Take extra time to discuss intent.
6. Random?
Strange things do happen out there on fire assignments. Some of them are certainly outlier occurrences, some of them are not. Either way, these instances often provide an opportunity to reframe and think about hazards we may not have recognized.

They’re Shooting at Us!
“The incident personnel watched with binoculars as one of the two individuals put a scoped rifle on a bi-pod and looked up the mountain toward them.”
Miriam Fire Shooting Incident

Exercise (30 minutes)
Study these incidents. Individually think about a time you were surprised on a fire. Tell each other your “surprise stories.” Discuss this question: If we blame all surprises on “poor SA” what lessons are we missing out on?

Blasting Caps Discovered During Mop-Up

Exploding Cans
Owyhee Fire Can Explosion
Davis Fire Can Explosion

Generators were placed in close proximity to work spaces and it was determined there was a high likelihood personnel were being exposed to elevated levels of CO gas.
North Fire ICP Carbon Monoxide Exposure
7. Lesson Session

Why do we collect these reports? It’s for the ultimate pay-off: 
THE LESSONS!
Here are some real lessons from real events in 2018.
What will you do with them?

“If the bar of the chainsaw is pinched, leave the chainsaw and utilize the escape route.”
Coconino RX Prep Felling Accident

Primary Escape Route
Secondary Escape Route
Sawyer Pinned Here

Exercise (30 minutes)
Take some time to look over these lessons.
Based on what you do, which of these events are YOU most like to experience?
None of these events were fatal. Discuss all the ways these events COULD be fatal.
What can you do NOW to prepare for a similar circumstance?

He’d noticed this section of road earlier. He wishes he would have flagged it.
Fawn Fire Rollover

On the Martin Fire, three different Dodge 1500 pickups had their gas caps plug up with dust to the point that the fuel tank couldn’t breathe properly. This, in turn, caused the fuel tank to partially collapse two of the tanks and totally collapse one of the tanks.
Martin Fire Fuel Tanks Collapse

Pre-planning led to the TRS being staged below, routes flagged, and no more than 26 minutes to pass from time of impact until transport to definitive care.
Kelly Creek Hit by Log

The engine caught fire while the crew was working other spots.
How do you decide when and where you can leave the engine?

“Hear ROLLER! ROLLER! ROLLER!” - Swamper, Saw Team 2

Anytime dozers or heavy equipment have previously been working above a crew’s location, it should trigger a “watch out” for rolling debris.
Hirz Fire Boulder Strike
8. Entrapments

Entrapments are always a popular topic of discussion at training. Why is that?
In 2018 we collected reports on 10 different entrapment events. All entrapments are scary and some of these were especially terrifying. Several of them were fatal. Some were as close to fatal as they come. As always, the dilemma is how best to benefit from the experience of others? HOW you view and interpret these events will determine what YOU get out of someone else’s life-threatening or deadly event.

How do we make these events matter?

“At that time, I was thinking: ‘Is this how it all ends?’ Then I thought of my wife. She is going to be so mad at me! I thought of my four-month-old daughter and realized I am not even going to get to know her.” - IHC Superintendent

The Horse Park Entrapment is an amazing story. This report also includes ready-to-use learning tools ripe for use in the classroom:

- Story Map
- TEDEd Lesson
- Narrated Drone Footage Video (includes actual Air Attack traffic).
- Sand Table Exercise (pg. 53 of report).

This has all the curriculum already built for you – use it. At least show the video.

The Stone Fire Entrapment contains great discussion material. It’s a typical IA that turns into a scramble off the hill. The escape includes multiple people ditching packs and saws and two last-minute helicopter extractions from less than ideal landing areas. It was an action-packed assignment for all involved. You should read this (16 pages).

Exercise (30 minutes)

Consider these two extremely narrow escape situations above.
Discuss this notion: “If you haven’t been chased by fire you’re doing it wrong.”
Where does this come from and what are the implications and impacts of this perspective?
Just a Piece of PPE?
“If the act of deploying the fire shelter itself is considered the accident, there is little room left for us to expect that firefighters, if given a choice, will ever choose to do anything but wait until the last possible moment to deploy. Not wanting to be a part of an accident, firefighters may search for nearly any other option to avoid the “accident”. If that avoidance contributes to delaying a fire shelter deployment, or worse yet, a serious or fatal injury as a result of that delay, we have done great harm in defining a fire shelter deployment as an accident.”

Grassy Ridge Entrapment

He was hesitant to pull his shelter because he did not want to be the reason why an Accident Investigation Team was at the fire.

Briefing?
“When urgency becomes the mission, as it may have on August 19, critical aspects of how firefighters operate in the wildland fire system can be pushed to the side. Creating a time-wedge, real or perceived, can push people to give briefings that lack the pertinent information, or to skip them altogether. It can prevent resources from having adequate time to gather their own situational awareness, relying solely on the information of others. If that information isn’t clearly communicated, those involved may not have a clear understanding of what they are being asked to do.”

Ranch Fire Entrapment

Summary Exercise (30 minutes)
Take some time to reflect on everything in these 10 pages.
How do we make it matter?