Two More Chains

Fall 2012 ▲ Vol. 2 Issue 3 ▲ Produced and distributed quarterly by the Wildland Fire Lessons Learned Center

Wildland Fire Lessons Learned Center

Wheels, Wings, and Rotors

Engine Boss Anthony Polk (pictured above with his daughter Aiyana) perished in a rollover accident this season on the Montezuma Fire.

Anthony Polk

Anthony Quinten "Tony" Meyers, killed in a 2011 ATV crash while reconning two IA fires.
http://wildfirelessons.net/documents/Meyers_Fatality.pdf

Getting There and Getting Back: It's Our Most Dangerous Activity – How Come?

By Paul Keller

Here's what this article won't be about:

Driving guidelines and policies, operator qualifications, or aircraft safety rules and procedures. Policy manuals, your ***Fireline Handbook***, and your ***IRPG*** already provide you with this type of information.

Here's what this article will be about:

The realization that we need a deeper look into why we keep getting hurt and killed responding to, returning from, and while on incidents. Also, some vital questions you might consider next time before you load up to leave, such as: *"Is this mission (drive or flight) necessary?" "Is this an 'emergency'?" "Whose emergency is this?" "What is our exposure time?" "Do we really need to leave at 2 in the morning?"*

This article will also explore recent driving and aircraft incidents to see what lessons we can learn and share. We will also acknowledge and honor our fellow wildland firefighters—some pictured on this page—whose lives have been lost to these accidents.

Among our fatalities this season, we have lost Engine Boss Anthony Polk, 30, who was killed when his Type 6 Engine rolled over on the Montezuma Fire south of Tucson, Ariz. Anthony was a 10-year veteran firefighter with the Fort Yuma Agency, Bureau of Indian Affairs, in Arizona. Two other crew members were injured in this accident.

http://wildfirelessons.net/documents/BIA_Montezuma_Fire_72_Hour_Report.pdf

Other 2012 driving incidents include a collision that occurred at 2:15 a.m. when a crew van—responding to a fire—collides with a semi-truck and ten firefighters are injured, one critically; an ATV rollover; and firefighter and engine on initial attack struck by a civilian vehicle.

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Bryan Rich

Scott Charlson

David Steele

Edrik Gomez

Michael Hammer

Shawn Blazer

Steven Renno

James Ramage, Pilot

Roark Schwanenberg, Pilot

The firefighters and flight crew who died in the 2008 Iron 44 helicopter crash.
http://wildfirelessons.net/documents/NTSB_Preliminary_Iron_Complex.pdf

In this Issue

Ground Truths

By Travis Dotson
Fire Management Specialist
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Own Your Strategy

This summer I was at a classic Type 1 briefing. You know, big stage, giant map, PA system, Finance saying "turn in your time," Training saying "come fill out some papers," Plans saying "Next." Anybody ever been to that briefing?

Eventually, one of the multiple ICs came up to give the parting words. He gets up and makes some jokes about the color of his hair and how long he has been around. Good stuff. He then starts to talk about how he has been on a number of fatality fires and how he has read lots of fatality reports and how they all boil down to two things: People not having good enough Situation Awareness, or not adequately assessing risk. (Isn't one part of the other?) He then gives examples of folks thinking they were far enough away from the snag or that the fire wouldn't run as far or as fast as it did.

Let's consider who we are as dirt throwers.

I understand he was genuinely concerned for our safety and was trying to caution us all to be careful. Like saying "stay safe out there." (Which is kind of like telling someone *"Good Luck"* as they walk into the casino!) But, at the time, all I heard was: *If you get hurt out there, it's your fault!* All it really did was make me mad. I felt like saying: *"With all due respect, sir, I'm out there implementing YOUR strategy. You're the one saying: 'Let's keep the fire from advancing this direction.'"* Implementing that strategy involves risk. No matter how you slice it. So it feels like you're telling me: "*Go out there and expose yourself to a bunch of hazards—but if you get hurt, it's your fault!*" Really?

Getting the Job Done
Let's consider who we are as dirt throwers. We are typically action oriented, enjoy a challenge, and want to do a good job. We are a group of people who will find a way to get the job done. What is the Danger/Opportunity in that? The opportunity is that the job will more than likely get done. The danger is that we will typically accept a substantial amount of risk in getting the job done.

Check these out:

- Firefighter vs. Tree (*after* sending fallers in to snag the area—mitigating risk).
  http://wildfirelessons.net/documents/Gold_Pass_Fire_RLS.pdf
- Firefighter vs. Log (steering clear of a falling operation puts them under a bucking operation).
  http://wildfirelessons.net/documents/Trinity_Ridge_West_72.pdf
- Firefighter vs. Snake (reaching down to pull some grass out of the way).
  http://wildfirelessons.net/documents/Snake_Bite_LA_County.pdf

So all these folks didn't "adequately assess the risk"? or they "lost Situation Awareness"? (Is that even possible?)

Or, were they out there trying to do good work and implement a strategy that involves risk? Trust me. I certainly believe that we as individuals contribute the most to avoiding injuries. But we *do not* operate in a 100 percent safe work environment.

We prove that every summer.

Be Careful What You Ask People to Do
ICs at all levels (Type 5, 4, 3, 2, and 1), we need to acknowledge our part in deciding how much risk is accepted out on the ground.

Yes, a crew can always "turn down" an assignment or suggest another way of getting the job done. But remember who you are dealing with. A bunch of "find a way" type of folks who pride themselves in getting things done.

We *will* find a way—the safest one we can.

But please don't believe the responsibility for every mishap lies solely on the shoulders of those closest to it. Be careful of what you ask people to do, because they will do it.

Dig on Tool Swingers.

Rapid Lesson Sharing

Did you know that the Wildland Fire Lessons Learned Center (LLC) has a new, easy, method for you to quickly get your lessons back out to the field? Called "**Rapid Lesson Sharing**"—or "**RLS**"—if you have a lesson that you'd like to share with the wildland fire community, this new communication tool now provides you this ability.

Your "lessons" could include successes, challenges, close-calls—any valid insight into operating more efficiently or safely. Here's how it works: You simply fill out a user-friendly electronic form. (To see this form, click button on your right.) The LLC transfers your info into a one or two-page narrative summary—with photos if you have them—and posts it to the LLC website. (To sign up for our "What's New" email notification service, Click Here.) **Rapid Lesson Sharing** submissions are posted and available at: http://wildfirelessons.net/HotTips.aspx.

So far, we've received **Rapid Lesson Sharing** submissions from firefighters on everything from a drip torch malfunction, to insights on loading tools for helicopter transport, to why you shouldn't use that falling wedge if it's missing its metal strike plate.

This July, we received two driving **Rapid Lesson Sharing** submissions:

- A close call on a Type 4 Engine during night operations.
  http://wildfirelessons.net/documents/Engine_Night_Driving_RLS.pdf
- A Type 4 Engine tire blowout while travelling at 62 mph.
  http://wildfirelessons.net/documents/Engine_Tire_Blowout_RLS.pdf

Do you have a Rapid Lesson to share?
Click this button:

Share Your Lessons

In July this year, ten firefighters are injured, one critically, when the driver falls asleep and this van drifts into the opposite lane, colliding with this semi-truck.

[Continued from Page 1]

Enroute to a Fire at 2 a.m.—with Nine Firefighters on Board—Driver Falls Asleep

It is July 9, this year.

The 35-year-old driver of an Oregon contract firefighter crew van—carrying nine other firefighters to the Briley Mountain Fire in central Oregon—falls asleep.

It is approximately 2:15 a.m.

The van drifts over into the westbound lane of Oregon Highway 126—hitting an approaching semi-truck. (See post collision photos on left.) All ten firefighters are transported to three area hospitals. A 39-year-old woman is in critical condition. The truck's driver and passenger are not injured.

The van's driver is cited by Oregon State Police for failure to drive within a lane.

Tragic History: More Firefighters Perish in Van Incidents

Nine years earlier, eight First Strike Environmental contract firefighters driving back to their Oregon base in their company van—after their 14 days on an Idaho fire—aren't so lucky.

Attempting to pass a truck on a curve, they collide head-on with a semi-truck. All eight firefighters are killed: the driver, Mark Ransdell, 23; passengers Ricardo "Ricky" Ruiz, 19; Jesse James, 22; David Hammer, 38; Leland Price Jr., 27; Paul Gibson, 25; Richard B. Moore II, 21; and Jeff Hengel, 21.

One year prior, another Oregon contract firefighting crew with Grayback Forestry experiences a van rollover tragedy. Driving to Colorado's Hayman Fire, the driver of the 15-passenger van—carrying 11 firefighters—reaches for a cup. During this distraction, the van veers left into the median then crosses back across the roadway, rolling four times. Three firefighters are ejected. Four firefighters are killed. One of the four seriously injured firefighters dies two days later in the hospital. At the time of this rollover accident, only one of the five firefighters who die is wearing a seatbelt. After being cited, the 21-year-old driver pleads guilty to careless driving.

[Continued on Page 4]

The five Grayback Forestry firefighters who perish in the 2002 van rollover accident (from l to r): Bart Bailey, 20; Daniel Rama, 28; Jake Martindale, 20; Retha Shirley, 19; and Zachary Zigich, 18.

The Engine 11 Crew, from Lassen National Forest, (from left): Acting Captain Steve Oustad, Acting Engineer Heather DePaolo-Johnny, and Crewmembers John Self, Ryan Smith, and Alex Glover. Their Stanza Fire rollover accident takes Steve, Heather, and John's lives. http://wildfirelessons.net/documents/Stanza_fire_accident_report_2000.pdf

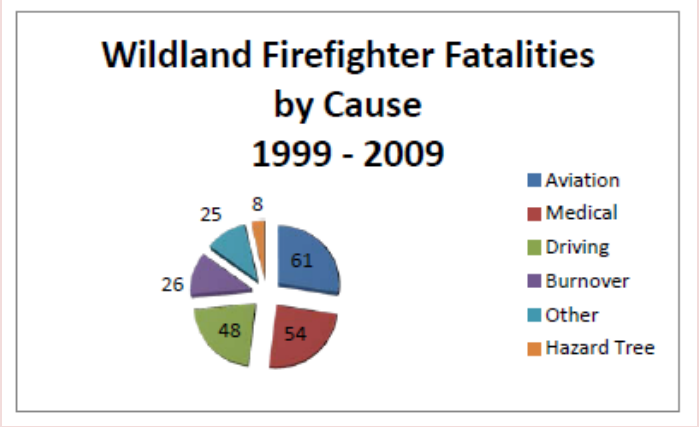
Last Season: Hotshot Crews Drive 5.4 Million Miles

If you're a wildland firefighter, it's almost a certainty that you're asked to drive—as well as fly (via rotor and fixed wing)—a whole lot more than your non-firefighter buddies.

Last year, of the 109 interagency hotshot crews who provided their driving stats, these folks drove—including all crew carriers and support trucks—a remarkable cumulative total of 5.4 million miles to meet their mission! The average 2011 mileage per crew: just over 54,000 miles of driving.

Of Special Note: This noteworthy 2011 5.4 million-mile total included only 14 accidents. On average, that's one accident per every 391,000 miles driven by the IHCs. These crews are taking a proactive approach in driving to and from, and while assigned to, incidents. They provide drivers' training to their operators, and rotate their drivers to manage fatigue.

And, of course, these IHC total miles don't include all of the engines and myriad other wildland fire support vehicles tasked with hours and hours of driving. With all the fire activity happening this busy fire season, chances are good that these driving stats for 2012 will amp up even higher.



Pie chart confirms the risks that driving and flying pose to wildland firefighters. For the recent 1999-2009 decade, these two activities—along with the general "medical" category—posed the greatest danger to firefighters. During this time period, 61 firefighters were killed in aviation accidents and 48 firefighters perished in driving accidents.

The following driving/flying injuries occurred in 2010: four rollover incidents representing two firefighter fatalities and several injuries; a firefighter was also killed when struck by a vehicle. In 2011: two rollover incidents (including a crew carrier with nine people onboard) accounted for several injuries; two struck-by-vehicle incidents killed one firefighter and another firefighter received spinal injuries; three ATV accidents, one fatal. [Statistics provided by the NWCG Risk Management Committee.] For more 2012 driving and flying incident information:

see pages 5 and 6.

[Continued from Page 3]

"Is Anyone Else Alive?"

The year 2002, when these five Grayback Forestry firefighters perish in the van rollover, also claims the lives of three U.S. Forest Service firefighters when their Type 3 Engine plunges off a narrow mountain dirt road at 2 a.m. while working the night shift on the Stanza Fire in northern California.

"Is anyone else alive?"

That's what Engine 11 crewmember Ryan Smith calls into the dark after their engine—with all five crew members on board—slides sideways off this cliff-hugging spur road, tumbles more than 1,000 feet down the predominant 80 percent slope, and finally lands on its top.

Smith and Alex Glover manage to ride out the fall inside the vehicle. Glover, hanging upside down by his seatbelt, unlatches it. He falls to the roof. Smith helps him out of the engine and finds a flat spot where Glover can lie down. Both firefighters are seriously injured. Smith has head injuries.

These two had been in the rear seat—Glover behind the driver, Smith in the middle, with John Self on his other side. Acting Captain Steve Oustad had been in the front passenger seat beside the driver, Heather DePaolo-Johnny.

The force of the downhill roll—their 500-gallon water tank was almost full—rips the axle assemblies, engine, and transmission off the vehicle. While they were all buckled into their seat belts, the power of the plunging rollover severs Oustad's seatbelt. The belts holding DePaolo-Johnny and Self are stretched, but still buckled. During the violence of the fall, these three members of Engine 11 are all ejected.

The rear crew compartment, where Smith and Glover are located, while deformed, remains relatively intact. Both doors are ripped away.

They Can Hear Crewmember John Self Calling Out

As soon as Smith and Glover climb out of the vehicle, they hear—from somewhere up the hill—crewmember John Self calling out.

Smith works his way up the hill to look for Self, who, now, is no longer calling out. Smith sees a headlamp moving up the hill. He points his headlamp in that direction to summon help. Approximately 600 feet up the hill from the wreck site, Troy Gullett, from the Kentucky 8 Crew, ties-in with the injured Smith. Gullett stays with him until Robert Morgan, an EMT, arrives and takes charge.

The injured Glover, who also tries to move up the hill in search of Self, makes it to a rock outcropping. He is unable to proceed any farther.

Derrick Gabbard and Brady Goad, Kentucky 8 Crew members—also making their way down the hillside to render assistance—find John Self, who appears to be severely

[Continued on Page 5]

[Continued from Page 4]

injured. He is also at risk of rolling downhill. They stabilize his position and try to provide the incapacitated firefighter comfort. Both Gabbard and Goad stay with Self until he has no more signs of life.

These two Kentucky 8 Crew firefighters then continue their downhill search for the other Engine 11 crewmembers. They find Alex Glover. Goad stays with him. Gabbard continues searching for survivors.

EMTs from the Kentucky 8 Crew, Plumas Interagency Hotshots, and Eldorado Interagency Hotshots, place Smith and Glover on backboards and transport them farther down the hill to another road. By 7 a.m. these two injured firefighters are flown by helicopter to medical facilities in Redding. Glover is treated and released the next day. Three days later, Smith is still in the intensive care unit.

The Water Tender driver who drives by the same narrow curve—where the rollover accident will occur in the next 15 minutes—notices that his rear dual tire is directly on the edge of the road. After the Engine 11 accident, he recalls that he had also seen his dual wheel "throw a large rock or something off the road at the same point where E-11 rolled off the road."

Driver Heather DePaolo-Johnny is ejected 600 feet down the hillside and Acting Captain Steve Oustad is ejected 1, 000 feet down the hillside. They are both deceased on scene. Crewmember John Self, who is ejected 830 feet down the hill, dies 45 minutes later.

So, How Did This Rollover Accident Happen?

The Engine 11 Crew had been patrolling—back and forth—the primitive, single-lane Klamath National Forest Road 15N03A—a winding, dead-end spur road with steep drop offs—all shift. This road served as the control line (catching burning material, rocks, and logs) for the fire—located on the hillside above the road. This is Engine 11's second night shift patrolling this road.

Near Miss: Helicopter Crash

This July, after conducting bucket drops on a fire, a helicopter and helitack crew are flying back to their base. The ship suddenly experiences an unintended yaw. The crew members in the back of the aircraft hear a high-pitched noise and relay this to the pilot—who did not hear it. The pilot climbs higher, in the event of engine failure, necessitating an auto-rotation landing. A few minutes later, the engine loses power. The pilot announces to prepare for a crash landing. He makes a successful auto-rotate landing. There are no injuries to the pilot and 7 crew members.

http://wildfirelessons.net/documents/Hard_Landing_Green.pdf

Fifteen minutes prior to the accident, a Water Tender driver passes the narrow (future) rollover site—where there is a slight inside curve in the road. Two Kentucky 8 Crew firefighters are located on the inside/uphill side of the road near a trench and log. As the Water Tender driver slowly passes, he makes sure to avoid these two firefighters. He later explains that, in his driver-side mirror, he notices that his outside rear dual tire is directly on the edge of the road. He also sees his dual wheel "throw a large rock or something off the road at the same point where E-11 [soon after] rolled off the road."

Those next fifteen minutes tick by. Engine 11 now—once again, eight hours into their 12-hour night shift patrol—approaches this slight curve in the road where the two Kentucky 8 Crew members are still located. The road here is ten feet wide. Engine 11 measures 7 feet ¾ inches wide between its outside dual rear tires. The two Kentucky 8 Crewmembers say that Engine 11 was moving very slowly—on the outside of the road—past them. Driver DePaolo-Johnny allows for a safe distance to pass by these two firefighters, located on the inside of the road.

Engine 11 is now positioned over on the—driver's side—edge of the narrow road. Almost at a stop, as the engine slowly, cautiously, continues through the curve, the back driver's-side tires begin to slide and fall off the road. Surviving crew members Alex Glover and Ryan Smith say they both feel this weight shift happening. The two firefighters hear driver Heather DePaolo-Johnny exclaim: *"Oh no!"*

Two Air Tanker Crashes Claim Six Lives

While supporting ground troops with retardant drops, two air tankers crash this season (2012) on separate incidents, taking the lives of six airmen.

On June 9 on the White Rock Fire in eastern Nevada, on its second drop of the day, Capt. Todd Tompkins and First Officer Ronnie Chambless die when their Tanker 11—a Lockheed P2V-7—crashes. "It looked like a right wing tip hit the ground and caused the plane to start into a cartwheel-type crash," Iron County Sheriff Mark Grower tells reporters. The aircraft was under contract to the U.S. Forest Service.

http://wildfirelessons.net/documents/T-11_NTSB_Preliminary_Report.pdf

On July 1 on the White Draw Fire in South Dakota, a C-130 operated by the North Carolina Air National Guard crashes, killing: Pilot, Lt. Col. Paul Mikeal; Instructor Pilot, Major Joe McCormick; Navigator, Major Ryan David; and Flight Engineer, Master Sgt. Robert Cannon. Two other flight crew members are seriously injured.

http://wildfirelessons.net/documents/MAFFS_Fatalities.pdf

The C-130 crew who perish on the White Draw Fire (above from l to r): Pilot, Lt. Col. Paul Mikeal; Instructor Pilot, Major Joe McCormick; Navigator, Major Ryan David; Flight Engineer, and Master Sgt. Robert Cannon. Tanker 11 crew killed on the White Rock Fire (from l to r): Capt. Todd Tompkins and First Officer Ronnie Chambless.

Dusty, Narrow Mountain Roads—Our Workplace—Escalate the Risk Factor

On the 2012 Mustang Complex near North Fork, Idaho, the Strike Team Leader, driving a pickup, is the last vehicle in a strike team of engines on a system of narrow, winding dirt roads. As he steers around a corner—in heavy dust—the sun is suddenly piercing directly into his eyes. He reaches up and pulls down the visor. Inside that brief moment, the road disappears. Next thing the driver remembers, he is being pulled out of his rolled-over pickup and then inserted into an ambulance for transport to the nearest hospital.

http://wildfirelessons.net/documents/Mustang_Rollover_FLA.pdf

Dusty road with limited visibility. Result could have been much worse.

Jones Creek ATV is total loss. No firefighters injured.

All-Terrain Vehicles Present Their Own Risks to Firefighters

We're getting hurt—and killed—on All-Terrain Vehicles, too.

This July 24 on the Nebraska National Forests and Grasslands, while driving uphill scouting a dozer line on the Ash Creek Fire, the ATV rolls backward and flips over the top of the operator. Injuries to this firefighter include broken bones and bruises that require an overnight stay in the hospital – http://wildfirelessons.net/documents/Ash_Creek_ATV_FLA.pdf .

In 2011, four ATV accidents: 1) Kill one firefighter (see photo on page 1) when he crashes into a vehicle on Initial Attack; 2) Breaks the operator/firefighter's leg on a rollover on a prescribed fire; 3) Results in cervical strain, strained neck and back muscles, and a bruised knee to the ATV operator when it rolls over on a wildfire assignment; 4) Breaks the operator's collarbone when the ATV tips backward on a 40 percent-grade control line – http://wildfirelessons.net/documents/Prospect_Rock_ATV_FLA.pdf.

While no injuries occur, there are lessons from another 2011 ATV rollover – http://wildfirelessons.net/documents/Jones_Creek_ATV_FLA.pdf.

Exposure Time: Collisions Can Happen Enroute to Fires on Busy Highways and on Not-So-Busy Mountain Roads

So far this season, two near-collisions result in damage to vehicles, but—thankfully, *knock-on-wood*—not to the firefighters.

An engine responding to an Initial Attack fire on a narrow dirt road heads into a blind corner. A pick-up truck—coming the other way—suddenly appears. Both vehicles are in the center of the road. The engine driver steers the vehicle onto the right soft shoulder. While the engine and pickup clear each other without contact, the engine fishtails, slides off a two- to three-foot embankment and rolls (slowly) over onto the driver's side. http://wildfirelessons.net/documents/Keg_Fire_Rollover.pdf

Video

"Engine Rollover: Why this Accident Started Months Ago"

http://youtu.be/9yDSO4hZyhM

As an engine strike team approaches a busy interchange on five-lane Highway 99 in Sacramento, Calif., a passenger vehicle suddenly stops directly in front of one of the engines. To avoid a collision, the operator swerves and makes two more evasive maneuvers to avoid a second collision and to control the sway of the engine. The engine impacts a cement center divider.

http://wildfirelessons.net/documents/Highway_99_MVA_Green.pdf

Asleep at the Wheel

This recent FLA reminds us how working on a fire assignment can take its toll on your mind and body.

The cumulative effects of the environmental conditions, long duty days, and physical responses, all ganged-up to help trigger this non-injury accident—that, once again, could have been a whole lot worse.

Bottom Line: As soon as you feel sleepy driving, pull over. As long as it is safe to do so, do not hesitate to take this corrective action.

http://wildfirelessons.net/documents/Trinity_Ridge_Driving_FLA.pdf

Conclusion – There is No Magic Button

So, how do you ensure that you don't become the next wildland firefighter injured or killed in an accident associated with a machine that relies on wheels, wings, or rotors?

Unfortunately, there's no such magic button.

But a mindset that keeps these types of questions front-and-center is most likely a positive step in the right direction: *"Is this mission (drive or flight) necessary?" "Is this an 'emergency'?" "Whose emergency is this?" "What is our exposure time?" "Do we really need to leave at 2 in the morning?"*

We invest so much time trying to avoid—and be prepared for—the risks associated with our exposure to "the fire." Maybe it's time that we devoted this same passion and commitment to ensuring that our exposure to driving and flying is as risk free as possible. This means a whole lot more than just ensuring that your seatbelt is buckled and your lights are on.

We should dedicate this mindset of mitigating our transportation exposure to the memory of all of our brothers and sisters who never came home from their final drive or flight.

Photo: Wes Schultz

Rock in Your Duals

Have you ever had a rock stuck between your dual tires?
How do you safely get that rock out?
Here's one way that's been suggested to us.

[A special Thank You to Brian Hicks for this **Shop Talk**.]

FIRST!
Always Make Sure
You're Rockin' the PPE. (Ha!...*Rockin*'!)

Step One


Position the tires so the rock is closest to front of the engine. Wrap the chain around it.

Step Two

Pull the chain tight and place it under the front tire. (Line it up so you can back over it.)

Step Three

Slowly back over the chain. Have a spotter let you know when the rock is loose.

To see a one-minute Video that also illustrates this process, simply click on this link:

http://youtu.be/DFs7fiYXSzQ

Got More 'Rock-in-Your-Duals' Remedies?

Got any thoughts on this subject that you'd like to share? War stories about this or other methods for getting rocks out? Anything else that we should be watching out for? Please share it with us: lessonslearnedcenter@gmail.com

Engine 713

Gabe O'Keefe

Jesus Valdez

Berkeley Krueger

Engine 713 Crewmembers

Gabe O'Keefe, Detailed Engine Captain, has ten fire seasons, including time with Type 2 Hand Crews, Engines, and Hotshots. Gabe holds a BS in Parks and Recreation Management with an emphasis in Outdoor Leadership from Northern Arizona University.

Jesus Valdez, Detailed Assistant Engine Captain, has six fire seasons, including time with Hotshots, Prevention, Dispatch, Helitack, and Engine Crews. Jesus, a graduate of the Wildland Fire Apprenticeship Program, holds an MS in Agricultural Tech Management and a BS in Agricultural Education from the University of Arizona.

Berkeley Krueger, Crewmember, has six fire seasons. In 2005, Berkeley started on the Coronado National Forest Trail Crew, then spent four seasons on a Hand Crew before joining Engine 713 last season.

A Firsthand Account on the Dangers of Driving

By Travis Dotson

So far this season, 25 percent of the incidents reported to the Lessons Learned Center were driving incidents, including two fatalities. Let's face it, it may not be the toughest or most glamorous thing we do, but it is one of the most dangerous.

Meet the guys on Engine 713 from the Williams Ranger District on the Kaibab National Forest. This past season, these folks found out—firsthand—how dangerous driving can be. They have some great insight for the rest of us out there gambling with our lives on the road.

Think back to the beginning of the season. Your crew has just come on. You've got all your critical training completed. Your equipment is all dialed-in. All you need now is an assignment. Remember that? That is exactly where E-713 was back in May 2012.

Detailed Engine Captain Gabe O'Keefe explains their situation:

"This was our first assignment as a crew for the season. We got called down to the Tonto (National Forest) for severity. We checked in and they assigned us to the Globe Ranger District."

The Engine Module headed down to Globe, tied-in with folks there and: Boom! Off to a fire. Perfect! "We just finished doing our in-brief and they had that fire start," Crewmember Berkeley Krueger recalls. "We got on that for two shifts."

Engine 713's wild ride ended with a complete 180-degree turn on the other side of the highway. The damaged engine was now facing the opposite direction from which it had originally been traveling. The accident tore off all the driver's side compartments. From the point of impact to where the engine finally stopped was approximately 100 yards.

The crew was liking how this severity deal was working out. "We were all feeling pretty good about the assignment and hitting a fire already," remembers Gabe. "Our mission for the day was to get familiar with the area. So we were driving around the District, just getting to know our way around. We headed out Highway 188 toward Lake Roosevelt and took lunch near the northern District boundary. After lunch, we started heading back up the hill to check out the other side of the District."

Prepared for the Blunt Hit

"Jesus was driving," Gabe says. "I was sitting in the passenger's seat. Berkeley was in the back behind the driver. We were listening to music, discussing the severity assignment, just some general conversation. We were heading south, up the hill. There were two lanes for our direction of travel and one lane headed north (down the hill). We were in the farthest right lane."

"I was driving up the road," Detailed Assistant Engine Captain Jesus Valdez recalls. "Out of nowhere this guy is headed toward us. Gabe says: *'What's this guy doing?'* I answer: *'I don't know—he's coming at us!'* I gripped the steering wheel and pulled over as far as I could. I didn't want to slow down to create a head-on and I couldn't really speed up because of the weight of the water. So I just kept it steady—and prepared myself for the blunt hit."

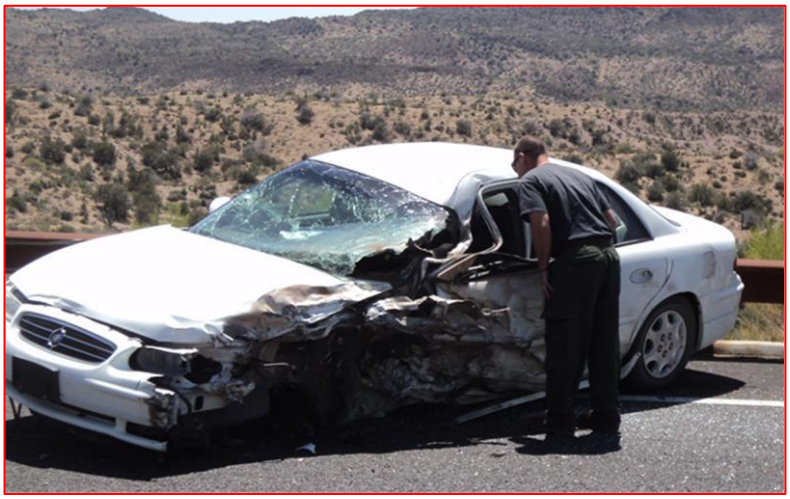
"Things seemed normal, just riding along," says Berkeley, who was in the backseat. "I didn't see it coming at all. I kind of remember somebody saying something from the front seat, and then he hit us. You hear it, and you feel it. The truck was shaking and swerving real hard. I just sat there and held on."

"Once he hit us," driver Jesus says, "it threw us into a swerve. I tried to correct it and that threw us into another swerve. All of a sudden, it felt like one side–because it was now all bashed up—was leaning, or there was no weight, or something. It felt like we were going to tip over. That's when I turned it the other way and then tried to correct that."

"It all happened pretty fast," Gabe assures. "We hugged the guard rail on our right as far over as we could get. I'm surprised we were even able to do that in such a short amount of time. I remember, at one point looking out the window and thinking: *'We're going to nail the guard rail and roll down the hill.'* And then we would fishtail the other way and get pulled away from it. Right when I'd think we might be all right—it would go back.

"I remember, at one point, seeing a saw scraping along the highway right alongside of us. My immediate thought was: *'Oh man, that saw is gonna be messed up!'"*

"There was debris scattered everywhere," Gabe informs.



"The vehicle that hit us was messed up," says Engine 713 Captain Gabe O'Keefe. "It was a four-door sedan and the damage was extensive. I really didn't think that there was going to be anybody walking out of that vehicle."

The Aftermath

Imagine that. One minute you're driving down the road getting to know the District. And then: BAM! Before you know it, you're sitting in the middle of the highway in a smashed-up Engine looking down at the destroyed sedan that just hit you.

What do you do now?

Gabe explains how he needed to make an order of priorities—starting with: Make sure everyone is OK. "I could see Jesus. He wasn't bleeding or anything. I asked: *'Is everyone alright?'* "To my amazement," says Gabe, "everyone was alright. My next thing was: *'We gotta let someone know.'"*

Gabe called Phoenix Dispatch and informed that they'd been involved in a motor vehicle accident. He provided their location and informed that they were all fine. He explained that he wasn't sure about the injuries to the other party. He would assess and call them back.

As everyone prepared to get out, Jesus put the engine in park and let his foot off the brake. The engine started to roll downhill. Jesus slammed his foot back on the brake, but the Engine wasn't staying put. "I guess when he hit us, it severed the brake line and drained all the fluid," Jesus explains. "And when I pumped it, it sent what was left out." Jesus activated the emergency brake, which helped until they got it chocked.

The Engine Captain jumped into action on his next priority: Secure the scene and provide care. "I told Berkeley to get the first aid kit and follow me down to the other vehicle." By now, the other driver was out of his car. A crowd of people had started to gather.

"We asked the guy if he was alright," Gabe explains. "He said he was, but he seemed a bit out of it. He had some face lacerations and didn't look very good. He said he was the only person in the vehicle."

At this point, some of the other severity resources assigned to the Tonto National Forest, two single resources, arrived on scene. They had a trauma and a Basic Life Support kit.

Gabe continues: "I started assessing the guy and asking general questions. I went down the list of things we could offer. But he refused all treatment. He wasn't sure exactly what happened, but then it came to him all of a sudden that he had fallen asleep. He was very apologetic. He was constantly asking if everyone was OK on our side."

What Just Happened?

Engine driver Jesus says that, at first, he was shaken up—basically wondering: "What just happened?"

"Then I just started doing what we are trained to do regarding documentation—filling out paperwork, taking pictures. I called our AFMO and let him know what was going on."

Next, a progression of resources starting arriving: an ambulance, a fire truck, a Forest Service law enforcement officer, more local law enforcement. Gabe remembers how "We started telling what happened, and retelling what happened, and retelling what happened, over and over."

The crew helped clean-up the accident site, got their totaled Engine on the tow truck and eventually went back to the District office. They made some phone calls and figured out that they would head home the next day.

> *"At first, I was still in shock, so I didn't feel anything. But the following day is when the pain started."*
>
> **Jesus Valdez**
> **Engine 713 Driver**

Whiplash

It turns out the accident had caused Jesus some injuries.

"That next day, on the ride home, is when my back started to hurt," he informs. "I was out on light duty for a while. I missed a couple fires. But I came back and finished the season."

This incident has provided the Assistant Engine Captain some advice about interacting with the bureaucracy.

"The thing that bothered me the most was trying to deal with the Department of Labor and that whole situation. It was just a big mess," Jesus says. "Keep copies of all your paper work. I constantly had to fax this and that again and again. I thought because I was going back to work it would be simple. But, just last month, I came back from a fire and I had to deal with it (the paper work) some more. If this is normal, maybe someone should teach us the process so we can try to be prepared for it."

Be Familiar with the Accident Process *Before* the Accident

Engine Captain Gabe now has firsthand advice about knowing your agency's policy regarding motor vehicle accidents. "I knew that we keep accident forms in every Forest Service vehicle. If you're involved in an accident, you need to start filling it out. It ends up being really beneficial to have all that information right there, but not everyone knows that.

"Not everyone knows what the process is if someone gets hurt on the job, how to go about filling out all the appropriate forms. If you're waiting for an accident to happen to learn all that stuff, you're going to be behind the curve when it matters most. I stress to everyone, start familiarizing yourself with that process, with those forms. Expose your trainees and crewmembers to all that stuff in case something does happen."

Can We Practice Emergency Driving?

"I know we are taught things," Jesus says, "but you don't really know what to do until it actually happens. Then, it becomes a 'file' and the next time you're in that kind of situation, you know what to do. Of course, that's not just driving, that applies to everything we do."

Jesus explains how, before the Engine accident, he had been involved in a similar situation. "The rain was coming down really hard and you could barely see. All of a sudden, I get really close to a car in front of me—that didn't have its lights on. I swerved and tried to apply a little brake. I began to hydroplane. The same thing started to happen like what happened with the Engine—fishtailing left to right and correcting, eventually stopping in the direction traffic was coming. So in the Engine that day, I kind of went into autopilot because I had been in a similar situation. I knew what to do and just went by what I felt. I think that helped us."

Gabe shares his insights on this theme. "I don't think the official driving training I have gotten has really prepared me for something like this. If you are not used to having a vehicle on the verge of going out of control and you've never experienced this—how are you going to know how to react? I don't know if we can train for that. But a lot of the personalities who come into fire are similar, folks who like to be out in the woods. I think there is some good driving experience that occurs in that environment which helps us out."

> *"If you're waiting for an accident to happen to learn all that stuff, you're going to be behind the curve when it matters most."*
>
> **Gabe O'Keefe**
> **Engine 713 Captain**

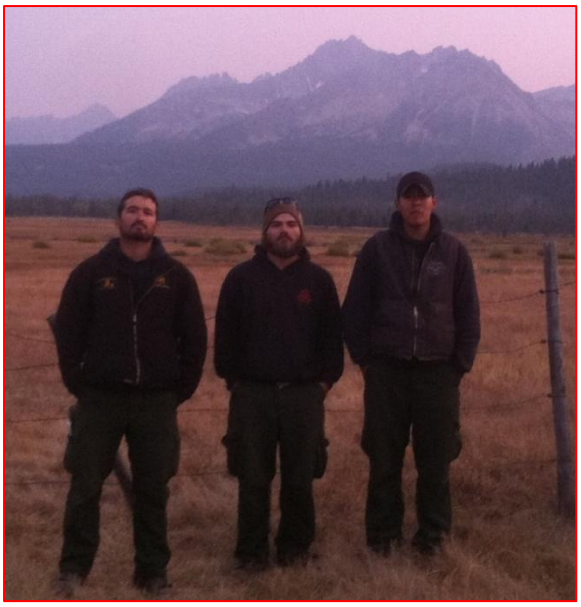
Jesus recalled something he learned in the Engine Academy that helped him as the driver in this accident.

"It was a drill where you had to do a lane change at the spur of the moment. Just in general, it's the spur of the moment stuff that helps. To me, when you're driving and you see something that's stationary, you know it's not going to move. It's more the deer, the elk, and other cars—you don't know what they're gonna do. If we could somehow practice dealing with that, it would help get people ready for something like what happened to us."

Preparing for Non-Fire Emergencies
"Over the years I have been through various scenarios," Gabe explains. "Like sand table exercises on an incident-within-an-incident or something that is not a fire scenario, like a medical or a vehicle accident. That gets you thinking about all the kinds of stuff that can happen on our job. You start to get the feel for how that can play out, who all is involved, and really turn it into a teachable moment.

"I think we can pull from lessons learned that have become more acceptable lately and use those beforehand. I certainly recommend that crews do these scenarios and utilize reports to generate discussion." [Visit: http://www.fireleadership.gov/toolbox/TDG_Library/thelibrary.htm .]

Pay Attention in First Aid Training
Gabe continues: "Get as much first aid training as you can. The agency pays for some of it. Don't take it for granted. When you're going through this training, absorb as much as possible and refresh yourself throughout the season. If you are one of the many people, like myself, who are EMTs, take that seriously. In this business, it's only a matter of time before you come to a point where you need to use those skills."



Engine 713 Crew (from l to r): Jesus Valdez, Berkeley Krueger, and Gabe O'Keefe.

Post Accident:
Have the Engine 713 Crewmembers Changed Their Behavior?
"The biggest thing for me is that I stress defensive driving more," assures Gabe.

"It's one of the biggest hazard exposures in our job. And yet, so many people don't take that as seriously as they should. The amount of hours and miles that we travel every summer is ridiculous. If you think about how much exposure we are putting ourselves in and how we don't expect it to happen—you *need* to drive defensively to reduce as much of that risk as possible.

"Get as much first aid training as you can . . .

In this business, it's only a matter of time before you

come to a point where you need to use those skills."

Gabe O'Keefe
Engine 713 Captain

"In our situation, I feel like Jesus was driving very defensively, his reactions were exactly what he needed to do. If we had slowed down at all, that vehicle could have easily struck the cab portion of our Engine—or hit us head-on. If that had happened, we might not all be here to tell about it."

"Now, when I drive," explains Jesus, "even in my personal vehicle, I look around and say: '*What if a rock happened to fall, what would I do?*' I'm literally throwing out scenarios for myself. After this incident, I'm constantly looking at stuff from a different point of view. You know, what if just around this corner, there is something coming at me . . ."

"Now, I'm constantly looking around for surprises."

Got a potential "One of Our Own" candidate?

Please let us know. Contact: Paul Keller 503-622-4861 prkeller@fs.fed.us

If you would like us to include you on our e-mail subscription list, please click here.

For past issues of *Two More Chains*:

http://wildfirelessons.net/Additional.aspx?Page=TwoMoreChains

Your FEEDBACK

How We Think

In the cover story of *Two More Chains'* summer issue, in talking about the Coal Canyon Fire when the vehicle burned, you say that firefighters were "forced to implement entrapment avoidance procedures."

Something about that strikes me as fundamentally the wrong way to think and talk about things. This has nothing to do with the events described in this specific FLA. It's more about how we as a community of firefighters think and the language we use most of the time.

I always figured that we teach and reemphasize—and over-emphasize—entrapment avoidance because, basically, it is a way of life. When you think and act that way *all the time* you tend to *not* get into trouble in the first place—or at least increase the odds in your favor.

I have always thought of entrapment avoidance as an overall approach to safe firefighting, not a last-minute set of procedures that you're "forced" into implementing when you are about to become entrapped.

In other words, you are *always* practicing entrapment avoidance by doing a whole bunch of different things: maintaining and updating SA, scouting, taking weather, posting lookouts, getting updated weather forecasts, using LCES, and so on.

That is decidedly different from the kind of entrapment avoidance that is basically: "Run for your life." Sure, that's a form of entrapment avoidance you might be forced to implement, but it's not what we teach—or how we want to operate.

Sometimes, people call up and tell me: "A crew was forced to retreat into their safety zone today on the (fill in the blank) fire," as though something bad just happened. I always say: "Great, that is normal firefighting." That is practicing entrapment avoidance as a way of life, not being forced into it.

The problem we all face is that entrapment avoidance is based on accurate fire behavior predictions. These predictions are usually made without 100 percent of the information we'd like to have while we're doing a lot of other things—and they're rendered useless by a single unpredicted wind shift, change in wind speed, or spot fire where we didn't think there was one.

Still, we do our best to avoid entrapment by doing all the things we've learned, things that have been proven to work over many years. It's not something we should be "forced to implement" at the last minute.

Larry Sutton
Fire Operations Risk Management Specialist
U.S. Forest Service - National Interagency Fire Center

Two More Chains, published quarterly by the Wildland Fire Lessons Learned Center, is dedicated to sharing information with wildland firefighters. For story tips, questions, or comments, please contact: Paul Keller, prkeller@fs.fed.us, 503-622-4861.

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This app features three automatically updating RSS feeds that send notifications to your smartphone. While we have yet to release the application to any of the app marketplaces, it is available to download via this QR Code, or the link below:

http://mippin.com/app/wildlandfirellc

Please Provide Us with Your Input

After reading this issue, will you do anything differently in the field?

How can we improve Two More Chains for you?

To answer these type of questions—and have an opportunity to share more of your thoughts and suggestions with us—PLEASE click on the title link (above).