Trout Fire Dozer Entrapment

Facilitated Learning Analysis

Gila National Forest

June 17, 2025

A half-torched juniper at the dozer entrapment site on the Trout Fire.

Executive Summary

On June 17, 2025, at approximately 1725 hours, a dozer operator on the Trout Fire, Gila National Forest, New Mexico, was entrapped while attempting to suppress spot fires near homes along the Highway 35 corridor. The operator abandoned his dozer to escape on foot, suffering burns to both hands, his face, and ear. He was quickly treated by on-scene medical personnel, taken to the local hospital and from there to the burn center in Phoenix, Arizona. The dozer operator was treated at the burn center and released the following day. He is expected to make a full recovery.

Introduction

How Can This Be Real?

Imagine a terrible sand table exercise: It's a Red Flag day on a major Southwest fire. The fire is crossing the highway, with houses scattered all over the place. A dozer engages to try to stop the fire running up the valley on the wrong side of the highway. In just five minutes, he is entrapped by the rapidly spreading fire and burned, jumping out of the dozer to reach his safety zone on a rock outcropping. On top of this, the dozer swamper is the operator's son. The dozer is still in gear and disappears into the smoke, with nobody in control. Houses are threatened, firefighters are engaged everywhere, the radio won't shut up and the wind is howling. This was Division H on the Trout Fire on June 17, 2025.

Background

The Trout Fire started on June 12, 2025, in the midst of Exceptional Drought (D4, the highest the scale goes) in southwestern New Mexico. Hot, dry weather and the dry fuelbed allowed for rapid fire growth that quickly escaped initial attack efforts (see Figure 1). That afternoon the fire had crossed the winding mountain highway New Mexico 15, burning in brushy fire footprints from 2006 and 2014.

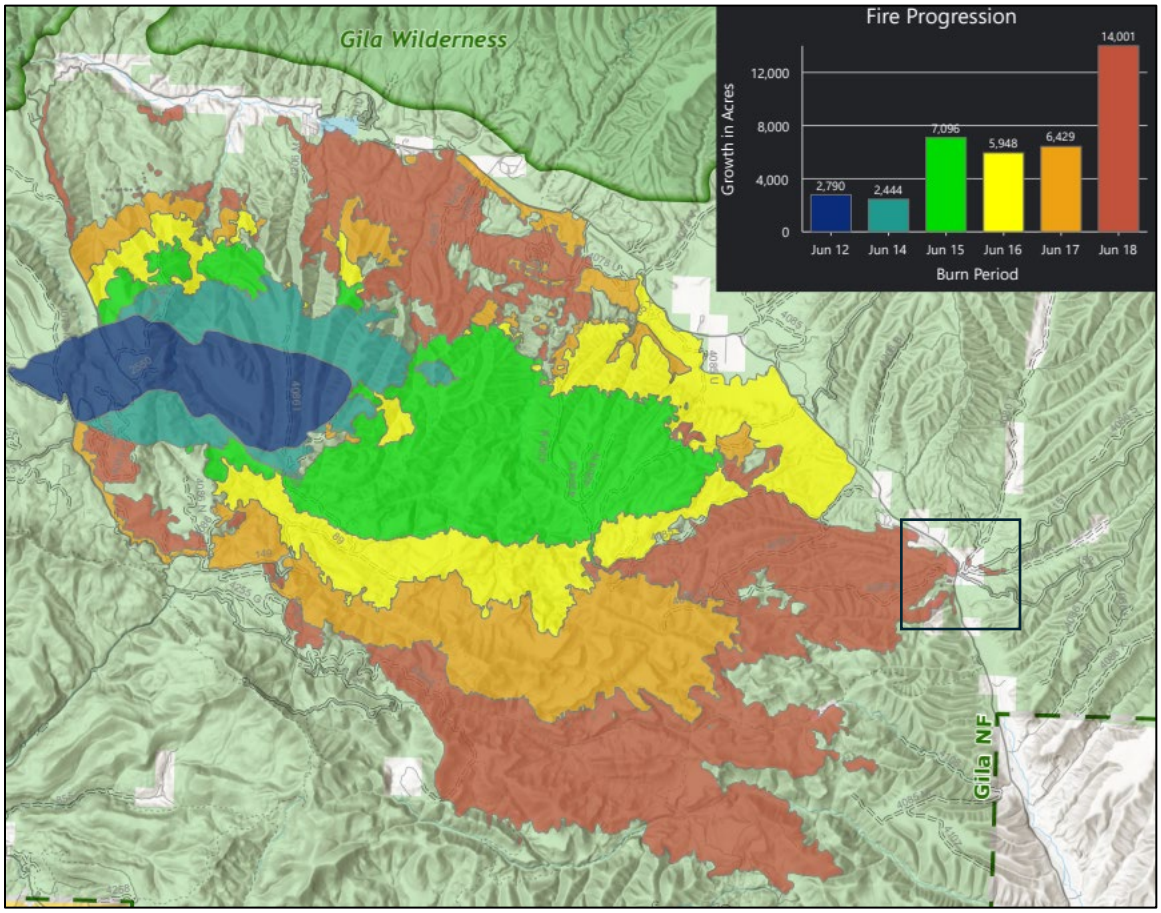

Figure 1 – Fire progression map of the Trout Fire from June 12 through 0126 June 18, 2025. The June 17 entrapment area is indicated by the black-outlined box. (Map courtesy SW CIMT4 GIS)

By the start of day shift on June 17, the Trout Fire stood at 24,706 acres, with 755 personnel assigned.

June 17 – Fire Hits the Trigger Point

Fire progression since ignition had been to the north and east, making runs when wind, drainages and fuels aligned. The Incident Commander (IC) described the first few days of the fire as being practically like initial attack every day, as the fire made significant runs and resources worked hard to protect values and stay out of its way.

By the end of June 16, the fire in Div H had reached the ridge above Hightower Canyon and hung up there for the night. Opportunities to go direct were limited. It became increasingly clear that the fire would eventually reach Highway 35. Structure protection preparation had been in progress for days on properties along both sides of the highway for miles. June 17 was predicted to be a Red Flag day with high winds and low humidity that would bring active fire behavior on multiple divisions all around the fire perimeter.

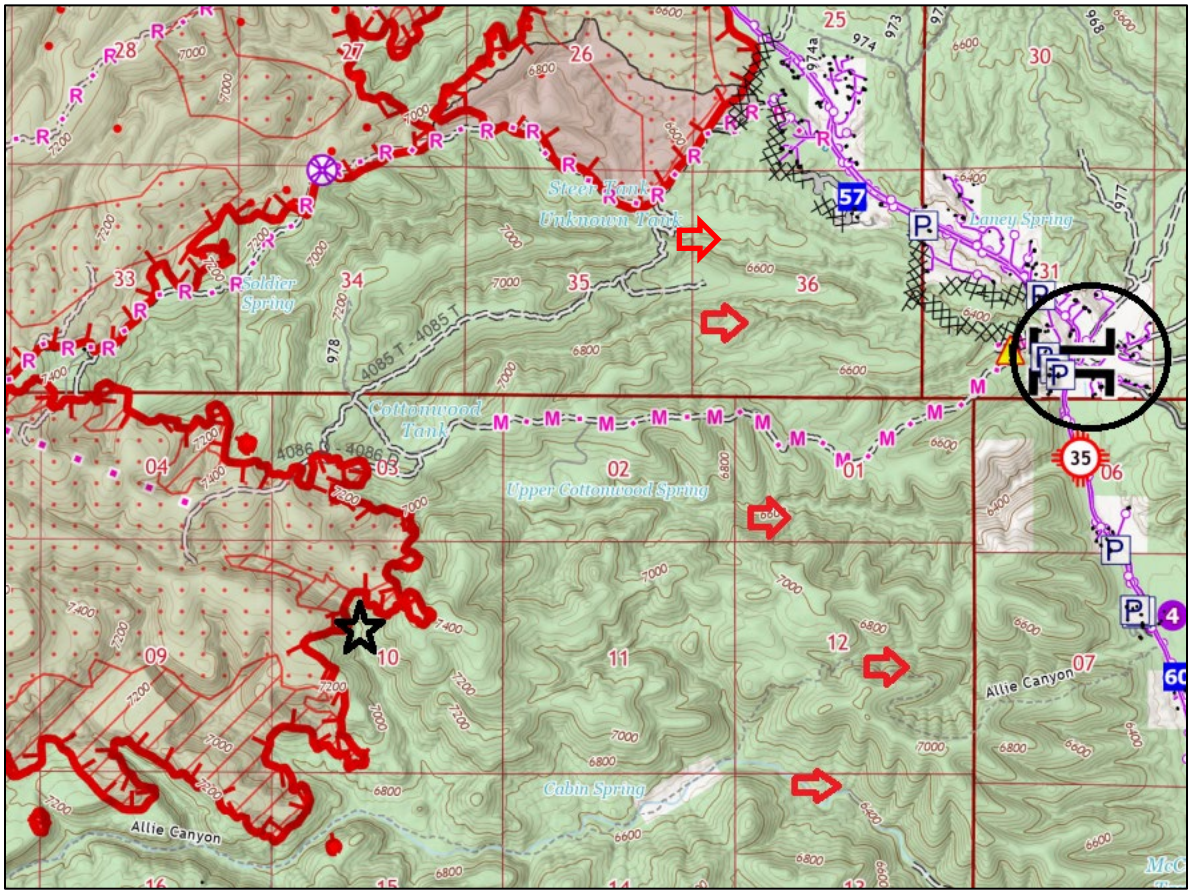

Figure 2 – Operational map for June 17 showing infrared-detected heat. Added by the FLA Team: Red arrows indicate possible routes from wind-drainage alignment to the east toward Hwy 35. Black star is Hightower Canyon trigger point. Black circle marks the general entrapment area.

While scouting in the first half of the day on June 17, Div H realized that the fire would impact Hwy 35 that day. The trigger point—fire reaching the bottom of Hightower Canyon—was about to be reached. The problem was there were so many drainages leading east (Figure 2), it was not clear what path the fire would take to reach the highway.

Plans were formulated to fire along whatever stretch of the highway corridor was necessary to keep the full brunt of the head fire from slamming into the highway and spotting over. These plans were coordinated with the adjacent division to the south. As it turned out, the fire took the farthest north path: Soldier Canyon. At 1545 it was game on.

A hotshot crew started to fire the junction of the dozer line and the road marked "M – M – M" in Figure 2. Almost immediately, however, spot fires from the main fire itself ignited south of this road. The crew ceased ignitions and pulled back.

June 17 – The Entrapment

Dozer operator Tim and his son David, his swamper, had spent three days on the Trout Fire putting in lines in the far eastern part of the fire in the vicinity of Camp Thunderbird with their Type 3 Cat D5K dozer. By contrast, Heavy Equipment Boss (HEQB) Tony had just checked in at ICP a couple hours ago and was now at Camp Thunderbird waiting for his first operational assignment. The assignment came in sometime after 1700: Lead Tim's dozer a few miles away to the junction of Hwy 35 and Soldier Canyon to assist suppressing spot fires and protecting structures. An active firefight was underway at this location with engines and crews engaged.

Figure 3 – Where the dozer transport and chase truck were initially parked. The sandstone rock outcropping is visible in the background. The entrapment site is in the top right corner, behind the rocks.

After parking the dozer transport and chase pickup truck (Figure 3), Tim jumped into the dozer to back it off the trailer. *"It should have been a clue* [about what was to come]," he would explain later, *"that I didn't even get the dozer off the trailer before spots were starting and burning towards us."* Tim immediately put the blade down and started to attack the spot, successfully cutting it off. In hindsight, he says, *"I probably shouldn't have even unloaded… but you don't want to be the guy just standing there."*

With engines a short distance away tasked with the same mission—defend structures and suppress spot fires—Tim started finding places to push in line, scouting the area himself to assess the threat to structures and the fuel continuity. Meanwhile, the fire continued to threaten the dozer transport, chase truck, and HEQB Tony's vehicle. Tony quickly organized a vehicle shuttle with Tim's swamper, his son David, and the three vehicles were moved to a safer location.

> ***"If it was going to catch me, it was going to catch me running."*** **Dozer Operator Tim**

Tim identified a trailer house on a hilltop as potentially at risk. Once he was closer, however, he realized that the slope leading up to it was sandstone and unburnable. He also identified this area as a potential safety zone. Therefore, he then turned to try to cut off the left shoulder and head of the fire that was running through grass in an open flat river valley. After several unsuccessful attempts to stop the fire from continuing to run northeast, Tim began to walk the dozer (travel with the blade lifted) to a two-track road to find a location where line construction might be more effective. The pace of fire activity was high.

Figure 4 – Google Earth image of the entrapment location. The yellow highlight is the sandstone rock outcropping; orange highlight is the approximate fire location. The yellow dot is the approximate entrapment site.

Visually tracking the fire's advance, Tim judged it was about 200 yards away in the tall grass and scattered junipers. Looking back only moments later, it was 100 yards[1] away. Then it was on him (Figure 4).

A lookout from the closest engine (E-44) judged that 15-foot flames were touching the dozer as it walked up the road. The machine then disappeared behind a wall of smoke.

Tim was hit by a blast of intense heat from at least one torching juniper tree and jumped off the dozer, his helmet tumbling off as he hit the ground (Figure 5). His hands and his face were burned. The pain was intense.

Tim ran toward that sandstone outcropping he had identified minutes before, knowing that was a valid safety zone—further burning his fingers along the way when he jumped over a hot barbed wire fence. *"If it was going to catch me,"* Tim says, *"it was going to catch me running."*

Figure 5 – Tim's melted helmet found at the entrapment site.

But it didn't catch him. Tim made it to the safety zone and was immediately picked up by the captain of E-44 and placed in the engine. The engine crew was still fighting fire, protecting themselves and the house behind them. Tim needed to get away from the heat and intensity of the ongoing fight to corral the spot fire. He was soon transferred into the care of their Task Force Leader (TLFD), Simon. The entrapment was over; the response to the entrapment now began. Five to fifteen minutes (accounts vary) had passed from Tim offloading the dozer until the entrapment was over.

HEQB Tony and David were just back from moving the last vehicle a short distance away when he heard that Tim had been entrapped. Everything had all happened so fast, it felt like a bad dream. After all, they had just gotten here!

In his escape from the advancing fire, Tim had inadvertently left his machine in reverse. It walked itself about 600 feet backwards (Figure 6), across the dry wash of the Mimbres River, through dense riparian shrubs (Figure 7), and up a driveway until it stopped against a tree (Figure 8). Its tracks were still turning, digging into the sandy soil. A firefighter in the area found the dozer shortly after the entrapment and shut it off. There it sat as a curiosity, an undamaged dozer parked against a tree. How could this undamaged dozer in the green be associated with the reported entrapment?

[1] Visiting the site during this FLA process, the FLA Team determined that these distances were most likely over- and under-estimations—sometimes by factors of 2x, 3x, or more—that is common under these circumstances.

Figure 6 – Part of the path Tim's dozer took after the entrapment. Arrow points to approximate entrapment location.

Figure 7 – The dense riparian brush pushed down by the driverless dozer. (FLA Team member for scale.) The blue lines indicate the dozer's path.

Figure 8 – Final location of Tim's dozer.

The Medical Response

The first call came in over the repeater network to Incident Communications at about 1728 hours: *"Yellow Priority Medical Emergency."* TFLD Simon called it in over the jammed radio network. Luckily for Tim, multiple experienced emergency medical providers were pre-positioned close by and responded immediately.

First on scene were Med Team X, a paramedic and an EMT in a UTV who were so close they were with Tim in minutes. Quickly behind were Red Rocks ambulance (RR Ambo) and Black Flag Response (BFR), a Rapid Extraction Module (REMS). Responding to the scene, these resources had to dodge burning branches in the roadway and navigate thick smoke laying over the highway. A Field Medical Unit Leader (MEDL) was also very close by and reacted immediately to the Incident-Within-and-Incident (IWI) call. He looked on his digital Ops map for the location he heard on the radio—Soldier Canyon—and couldn't find it. Nevertheless, in short order, he found the ambulance with Tim inside it.

While emergency medical providers on the ground assessed and treated Tim, two Medical Unit Leaders entered the Comms trailer, only a few dozen feet from their own portable office. The Medical Incident Report (MIR or 8-Line) came through in pieces rather than in the order laid out on the sheet.

In the background, other IMT overhead were on their cell phones, communicating and coordinating: with helibase to tell the assigned medevac helicopter to standby for launch, and with medical providers at the scene.

In a different part of ICP, key IMT members congregated at the IWI room, a space specifically set aside for this purpose with two poster-sized MIRs taped to the wall, in case two medical emergencies occurred simultaneously. On another wall were the medical evacuation maps for both air and ground transportation. The ground transportation map had travel routes from key locations around the fire, ground-truthed by Safety Officers, and color-coded based on the verified driving times.

At the accident scene, the fire situation was still dynamic, with active firefighting going on all around the responders. Quickly, the RR Ambo personnel took Tim into their vehicle to separate him from the action and provide comfort and safety. A BFR member took over communications with ICP while the RR Ambo staff handled patient care. TFLD Simon, who had been handling communications as IWI IC, felt comfortable turning the role over to BFR as the treatment and transportation were now underway.

Based on the patient assessment by these paramedics, the decision was made to categorize Tim's injuries as "Green" in severity, which was a downgrade in priority. The primary risk to the patient currently was the fire behavior still ongoing in the area. The ambulance therefore hit the road to find a place to continue treatment outside of the intense action. As it turned out, they just kept driving until they transferred Tim to a local ambulance, who took him on to the hospital in Silver City.

The Following Days

After an assessment at the local hospital in Silver City, a physician referred Tim to a burn center based on a concern that his airway may have been compromised. (Happily, this fear turned out to be unfounded.)

After a late night flight in a fixed-wing aircraft to Phoenix, Arizona, Tim's wounds were cleaned and he was held for most of June 17. The diligent work of hospital liaisons helped support Tim and his family, including with needed logistical support to make sure everyone ended up where they needed to be over the next couple of days. A few days after the entrapment, on June 21, Tim and David were back in Silver City, retrieving the dozer and sharing their story for this FLA report.

Lessons Learned by Those Who Were There

Dozer Operations

- **Consider operational assignments based on equipment configuration.** HEQB Tony's primary lesson was that he would avoid assigning an open-cab dozer (as opposed to one enclosed in glass) to construct direct line in active fire. There is a difference of opinion in the heavy equipment community about the appropriateness of open vs. closed cab dozers in direct line construction. Regardless, it is helpful to become knowledgeable in the differences between these designs and their potential limitations of open cab equipment in dust, smoke and heat.

- **Clear flammable material from anywhere on a vehicle that can receive ember fallout or direct flames**. The bed of Tim's chase truck had some errant hay in it from his day-to-day life as a rancher. The hay acted as a receptive fuelbed for embers. Without quick action by Div H, the truck would easily have burned to the ground.

- **Consider integrated training between contract heavy equipment operators and agency heavy equipment operators**. Fire training for contract heavy equipment operators is minimal compared to the extensive training that many agency operators go through. Training led by agency operators could help lessen the gap that exists between the standard operating procedures and expectations of fire overhead and agency operators from those of contract operators.

- **HEQBs, TFLDs, DIVS, and other fire leadership positions that are likely to supervise contract resources should know the basics of the contract specifications**. It may surprise many that contract dozers and other pieces of equipment used on wildland fires have relatively minimal wildland fire training, given the potentially hazardous situations that dozers and other equipment may be placed into. Knowing this background and working with the operator and their equipment can better guide these fireline oversight positions on their capabilities and limitations.

Medical Response

- **Only downgrade medical emergency priority if you are absolutely sure the severity is less than was first assessed.** When the first call came into Communications, Tim's injuries were categorized as "Yellow" priority *("serious injury or illness… 2-3rd degree burns not more than 1-3 palm sizes")*. After about 20 minutes, this was downgraded to "Green*" ("minor injury or illness. Non-emergency transport")*. Ultimately, Tim got the treatment he needed. Indeed, his admittance to the burn center was perhaps above the level of care he needed. But changing the severity of the emergency could have led to confusion among the staff at ICP trying to coordinate evacuation to definitive medical care.

- **Unless extenuating circumstances won't allow it, complete the MIR and read it over the radio line-by-line, in order.** The MIR was designed to provide a standardized template from medical emergency notification, such that anyone could follow along and fill in the report. Working through the MIR sequentially makes communication faster, more easily understood, and reduces the potential for errors and missing information. Checklists like the MIR are designed to be simple to understand and arranged in sequential order so that critical information is shared when emotions and adrenaline are high.

- **When communicating locations, especially to resources who haven't been in the area every day, use names found on incident maps and IAPs.** Over the course of an assignment, we use shorthand and slang to refer to landmarks that we know in common. These names might be related to where something happened three days ago, a local name no longer in use, or a name used on Google Maps and other general maps—but *not* printed on incident maps. Remember that people may need to find a location using only an Ops map. Drop points and other landmarks are placed on the map to create a shared geographic vocabulary.

- **Ideally, there is continuous contact between first responders treating the patient and the IWI IC in an emergency medical scenario.** The initial call to Communications about an entrapment and medical emergency was made in a timely manner and got every level of the incident organization working immediately to respond. But there was some confusion once emergency medical personnel arrived as to the location and status of the patient and who exactly was in charge.

- **Emergency medical personnel expressed the importance of establishing and maintaining positive communications as soon as they arrive at a new incident, or a new location on an incident.** In one case, a roof antenna for a handheld radio had to be taped to the top of a vehicle because the magnetic mount wouldn't work on the all-aluminum body. Without this more powerful antenna, radio traffic in mountainous terrain could be difficult to make out clearly.

Operations

- **Everything happens a lot quicker than you think it will**. Someone asked Tim after the entrapment why he hadn't used his fire shelter. *"I didn't even have ten seconds to spare,"* was his answer. In receptive flashy fuels, and particularly when wind and slope are a factor, fire can spread much faster than we expect.

- **Gather all available sources of information to build situational awareness whenever you have downtime**. Both Tim and HEQB Tony mentioned that the situation was developing too rapidly to build situational awareness on the spot. Take whatever down time you have to look at your available tools to build your SA. You don't know what pieces of information may come in handy in an emergency.

- **Like on initial attack incidents, establish a point-of-contact on spot fire/slopover responses or other critical operations.** Once the fire became established on the other side of Hwy 35, there were now two dynamic and vitally important operations going on simultaneously in Division H. The DIVS suggested afterward that establishing a point-of-contact at the spot fire response may have made span of control easier.

- **Divisions and Groups often occupy the same geographic space and require thoughtful coordination to delineate responsibilities, shared responses, communication channels, etc.** The use of functional groups (firing, structure protection) in addition to geographic divisions operating in the same stretch of line can create communication challenges (multiple channels to scan and/or a lot of traffic on a single channel). On top of this, medical resources are typically assigned to divisions rather than to groups. This means that groups must become familiar with which responders are available in their areas, particularly if they move around.

- **Deciding which resources are appropriate for which assignments is a difficult reality of wildland fire leadership, particularly when time is limited.** It's easy to say that a leader should become familiar with the personnel and equipment they supervise. However, in reality, time is often so limited that snap judgments have to be made and can have serious consequences. Building layers of mitigations (additional lookouts and trigger points, for instance) into any plan can help alleviate the worst of these consequences.

- **Use all the PPE available to you.** The flame-resistant clothing Tim was wearing almost certainly prevented further injury: *"I'm a firm believer in Nomex,"* he assures. Tim pointed to additional pieces of PPE that would have potentially lessened his injuries: flame-resistant gloves (flight gloves) that provide both protection and manual dexterity, and a face and neck shroud. In these situations, you likely won't have time to put on PPE that isn't already on.

Other Considerations

- **Strike Team Leaders, Task Force Leaders, Heavy Equipment Bosses, and other "middle management" positions on the fireline are critically important to safe operations.** The entrapment on the Trout Fire shows the critical importance of these roles, how their presence to direct their resource during dynamic, critical operations can add needed situational awareness and guidance. This entrapment is also a reminder that accidents can happen in a matter of mere minutes without any warning. For this reason, it is important for oversight to be as constant and communicative as possible. In recent years we have often dealt with a lack of middle management positions by simply assigning more resources for each individual to supervise. This practice makes this constant oversight and communication extremely difficult, if not impossible.

- **Consistently, entrapments are most common during initial attack operations.** While this entrapment took place on a large fire with an IMT assigned, the dynamic environment created by a spotting, running fire amongst structures resembled the pace and fluidity of initial attack. Consider how you and your team would respond if an IWI took place during the most hectic fire operations when communications channels are strained and span of control is already challenged.

- **Senses become overwhelmed in stressful emergency situations.** Research from aviation accidents shows that when pilots become task-saturated in an emergency, even loud alarms and flashing lights are no longer perceived. One potential example from the Trout Fire incident is the loud backup alarm and crashing sounds as the dozer walked over rocks and up and down several stream banks. While it may seem impossible in hindsight to have missed this, no one onsite heard or saw the dozer after the entrapment.

A Note on PPE

Tim's PPE performed as designed and likely prevented burn injuries; all burn injuries were to exposed skin. An area of the right sleeve of the flame-resistant (FR) shirt approximately 6-inches long and 2-inches wide shows signs of dye sublimation visible by a white or light tan coloration of the material.

Dye sublimation occurs when the fabric reaches approximately 425°F with the color change resulting from the dye being "baked" out of the fabric. The area of dye sublimation is adjacent to the exposed skin where Tim received burns.

The helmet found at the scene was extremely deformed and partially burned. Softening of helmet polycarbonate begins when it is heated through to 325°F. Deformation and melting can occur in polycarbonate material when it is heated through its entire thickness to 550°F. The presence of charring on the edges of the deformed helmet indicate it was briefly exposed to temperatures that exceeded 1,000°F. The helmet was found next to a burned juniper tree. That may account for the high heat exposure.

Acknowledgements

The FLA Team members want to thank all of the Southwest Area Incident Management Team members, Gila National Forest staff, and the many others who facilitated this report and helped in numerous large and small ways. To the dozer operator and his son and fellow firefighter, we thank them deeply for their openness to sharing this traumatic event and the time that they graciously provided us. All the others we interviewed, whether their words appear in this document or not, provided critical context and detail to help understand, to the best of our ability, what happened and why.

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