

WITHERS FIRE ENGINE INCIDENT

Facilitated Learning Analysis



FIGURE 1: ENGINE DAMAGE

Paisley, Oregon



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SUMMARY

On August 17, 2016, a Type 6 Engine with an experienced operator was scorched along the driver's side while conducting a burnout operation near Paisley, Oregon. The engine and two firefighters were tending to fire brands and hotspots along Forest Road 3315, which also served as a containment line. Once engaged, the firefighters received increasing amounts of smoke as the fire neared. Several attempts to back away from oncoming smoke and flames failed as the vehicle operator navigated in rapidly deteriorating conditions. With fire from the burning shrubs and grass hitting the truck, the temperature inside the cab rose and visibility for the driver was lost. Radio contact was maintained and the Division Supervisor Trainee (DIVS(t) Z) suggested the driver should change direction and drive forward out of the smoke and flames, which proved successful. The operator and all other personnel on scene were not hurt, though the engine sustained damage from the fire.

SETTING

The Withers Fire started along Highway 31, approximately two miles west of the small town of Paisley. The fire was initially identified as starting on private land, but was ultimately determined to have started on Bureau of Land Management (BLM) land. This area contains a mix of public and private lands. As the fire progressed, it moved across landownerships. The engine incident occurred on BLM land. Federal and State fire management resources responded to the fire with an Oregon Department of Forestry incident commander in charge of the incident.

Fuel types in the fire area are mostly shrub-steppe with clumps of juniper, ponderosa pine woodlands, and scattered individual trees across the landscape. Terrain in the fire area varies from steep rocky outcrops to gentle slopes. The incident area contained several slope breaks with saddles and knob-like features that created different wind patterns within a very small area where the firefighters were working.

The affected engine was initially working with two other engines, providing assistance to an initial attack crew conducting a firing operation along a dozer-improved two-track. They were directed to bump up and move around the slope and below the knob and work the fire along FR 3315 to address fire brands landing across the road. There were only two personnel assigned to the engine.

CHRONOLOGY AND NARRATIVE OF EVENTS

At approximately 2030 the resources assigned to Division Z (three Type 6 Engines, one ten-person Initial Attack Hand Crew, Division Supervisor [DIVS], and Division Supervisor Trainee [DIVS(t)]) began their burnout operation. All personnel on Division Z were qualified for their positions at the Type 3 level or higher. Initially, there were no holding concerns and the wind was pushing the smoke and embers back into the fire. They soon began to run low on slash¹ fuel, and Operations (OPS) informed Division Z (DIVS Z) that fuel was on its way. Once the fuel arrived at the parking area, DIVS Z went down to meet the fuel truck driver to stage fuel farther up the road for the lighters. At this time, the lighters began to experience increased fire behavior, so they reduced their ignition operation to one lighter and attempted to keep their blackline even with the fire. While working down the two track to meet the fuel truck, DIVS Z noticed a glow coming from below where they were lighting. Farther down FR 3315, the adjacent Division was proceeding with a separate burnout operation, moving east to west toward Division Z. DIVS Z wondered if the glow indicated the adjacent Division's burnout was progressing faster

¹ Slash fuel is also referred to as drip torch fuel and is used in burnout operations.

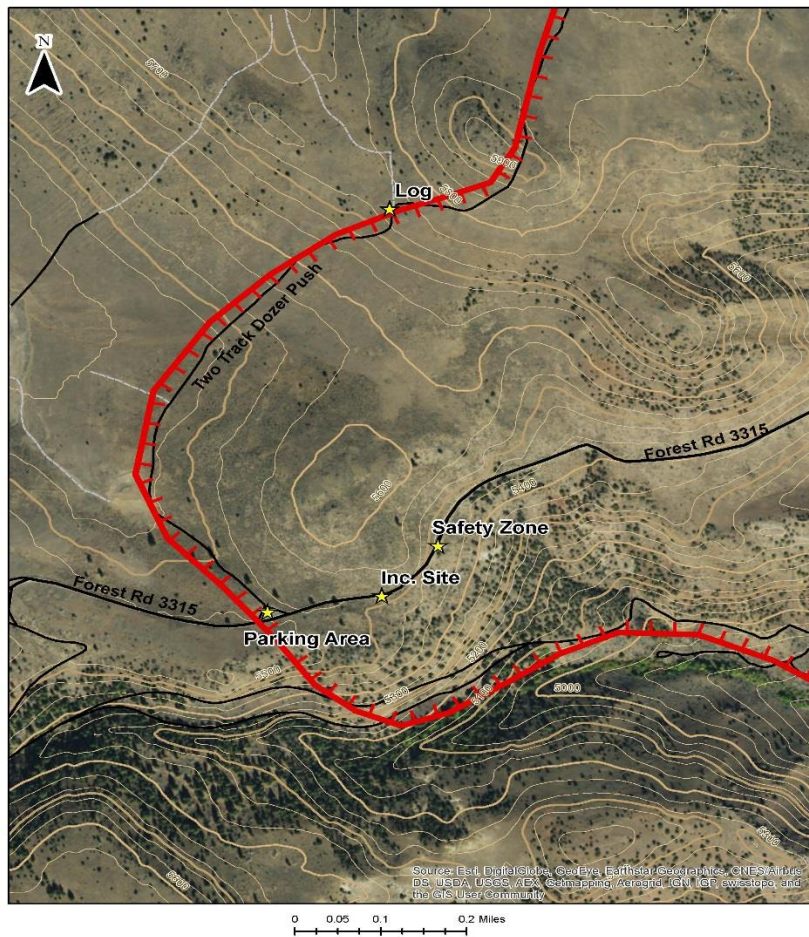


FIGURE 2: MAP OF INCIDENT SITE.

than previously thought. DIVS Z went to the fuel truck driver and got a ride down FR 3315 to investigate. DIVS Z saw fire within the containment line, but fire brands from Division Z's burnout operation were also blowing across the road—which was also the fireline at that time.

At approximately 2230, Engine 1 (E1) was contacted over the radio by DIVS Z and directed to stop assisting the two other engines in their holding efforts of the burn out operation and bump down the improved two track to assist with fire brands being blown over FR 3315. E1 met with DIVS Z down FR 3315, 700 feet from the parking area, in the area that was experiencing spotting. DIVS Z grabbed the hardline from the engine and started spraying hot spots. The winds increased slightly during this

time, as did fire activity. As flames and smoke continued to cross the road and visibility decreased, DIVS Z directed E1 to back the engine up the road to the parking area. At this time the engine crew member got out of the cab to assist with backing the engine.

Due to the poor visibility, the engine operator was having a hard time keeping the engine on the road, even with assistance. The operator knew the terrain well enough to understand that there was a steep downhill slope on the right side of the road. The operator was therefore cautious to stay close to the left, uphill side. E1's operator, again due to lack of visibility, backed the engine into the ditch on the uphill side of the road, where the fire made direct contact with the engine. The operator pulled forward, and instructed the engine crew member to back the engine further up FR 3315. The operator was unable to see the backer in the thick smoke, and once again backed into the uphill side of the road, again receiving direct flame contact.

At this point, DIVS Z and the engine crew member, who were both outside the engine, experienced large amounts of radiant heat. DIVS Z and the crew member retreated approximately 200 feet up FR 3315. In the meantime, E1 again attempted to back up FR 3315, under radio guidance from DIVS Z. The engine then backed toward the downhill side of the road, stopping just before hitting a tree. DIVS Z(t), who was

in the parking area, called over the radio to E1 to abandon the original plan of backing up to that parking area, and instead drive forward if possible.

E1 slowly started moving down the road through the flaming front. The operator described conditions as having zero visibility, to the point that he couldn't even see the hood of the engine. After seeing tail lights disappear into the smoke, DIVS Z and the crew member walked back to the parking area. Conditions in E1's cab were uncomfortable, but tolerable. The operator said he could feel the heat through the door of the cab on his legs. The air conditioning was set on high, but seemed ineffective. After traveling approximately 200 feet, E1 began to emerge from the smoke and heat into an area with good black on the uphill side. He traveled an additional 500 feet to a wide spot in the road that he determined was a safe area. At this time, E1 radioed DIVS Z and reported that he was safe and unharmed, and that the engine was still operational.

After turning the engine around and waiting for the heat to dissipate, E1 drove back up FR 3315 to the parking area. At the parking area, E1 met the rest of the resources assigned to Division Z. DIVS Z assessed the condition of everyone involved, and found that no one was hurt. DIVS Z made contact with OPS to relay that the fire had slopped over FR 3315. DIVS Z then called the incoming ICT3 to relay that the engine had taken some heat. DIVS Z brought all affected individuals together to assess the situation and evaluate their wellbeing after such a close call. After some rest and re-gathering their situational awareness, Division Z personnel began to engage the slop over.

The engine had melting of the driver's side front fender, side mirror, and light bar. The reflective striping on the side of the engine was also scorched. (Please see the Appendix for photos.)

KEY DISCUSSION POINTS

The Withers Fire Engine Incident had a positive outcome, due in no small part to the actions taken by the personnel involved in the incident. A multitude of factors contributed to the events that occurred that night, not the least of which was a rapidly changing fire environment. Despite this, the fact that personnel on scene responded quickly and reasonably, and kept their calm in the midst of a chaotic situation was critical to the positive outcome they achieved. Their margin of error was extraordinarily small, but quick thinking kept them from potentially disastrous consequences.

With this in mind, through the course of the FLA process, participants identified several discussion points that they intend to consider in future incidents. The FLA team includes these below in the hope that they will help aid firefighters in the future.

EFFECTS OF EVEN SMALL TOPOGRAPHIC FEATURES ON FIRE BEHAVIOR

The participants were familiar with the terrain and the fuel type in the area, but weren't able to see the topography in the dark of night. Thus, they couldn't have been aware of how the topography was going to affect fire behavior in that area. In this instance, a comparatively wide and shallow saddle split by a small knob (see figure 4 on next page) served as a funnel which concentrated the winds into an eddy effect in the area where the engine was burned. This example serves as a reminder to maintain situational awareness, as even small features can have profound effects on fire behavior.



FIGURE 3: DUST DEVIL IN THE LOCATION OF THE SHALLOW SADDLE AND THE SMALL KNOB.

HOW MUCH INFORMATION IS ENOUGH?

As this incident unfolded, there were some inconsistent understandings of operations between Divisions W and Z. It

appears each DIVS made some assumptions about what the other was doing at the time of the incident. Clearly, no one would suggest there will ever be complete communication across divisions, especially during an emerging incident, but interviewees from Division Z wondered if taking a little more time for communication before beginning the burnout operation might have helped.

POST-INCIDENT INFORMATION SHARING

In the hours and days following this incident, there was confusion over the details of what happened and the extent of damage to the engine. At various points afterward, descriptions of the incident ranged from “the engine took some heat” to it being labeled a burn over and entrapment. We are all fortunate that this incident had a positive outcome, but the concern for wellbeing of affected individuals created a need for more detailed information to be shared. The FLA team did not see any indications that information was being withheld. The flow of information was slowed by the affected individuals needing to meet their required work/rest ratio² after working more than 30 hours straight on initial attack, and a desire to not taint the FLA process.

POST-INCIDENT RESPONSE

Some participants shared questions about how affected individuals reacted to the incident, and the response on scene. The crews appeared to have good communication and focused on each other in the immediate aftermath. DIVS Z made the well-being of himself and everyone around him paramount. Most individuals found comfort in focusing their attention to the next task of addressing the slop over from the fire, though some took a little extra time to make sure they were ready and could be focused before engaging. By all accounts, the response was handled very well. This issue is raised here only as a point for future discussions about when and where it’s appropriate to remove individuals from an

² Wildland firefighters are required to meet a 2/1 work to rest ratio.

Withers Fire Engine Incident FLA

incident scene versus engaging them in another task. Each approach carries positive and negative effects, but discussion of when each option would be appropriate could be beneficial.

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APPENDIX – PHOTOS OF ENGINE BURN/SCORCH DAMAGE

