Rapid Lesson Sharing

Event Type: Wind Event

Date: June 28, 2020

Location: Canal Fire and Knolls Fire
Northern Utah

The June 28 Wind Event on the Canal and Knolls Fire

On the Canal Fire, a crewmember was exiting the engine when the winds ripped the door out of his hands. The winds folded the door open, resulting in substantial damage to the door and "B" pillar.

Firefighter on the Canal Fire leans into the buffeting winds that triggered extreme fire behavior, increasing the fire's size an estimated 66,000 acres in one day on June 28.

Background

This RLS tells the wind event story on two Utah incidents, the Canal Fire and Knolls Fire—located 120 miles apart—that were both hit by a cold front passage—packing up to 70 mph winds—that produced extreme fire behavior.

The State of Utah desert areas and foothills saw an abnormally dry winter preceded by a very wet winter in 2018-2019. This has created an abnormally high carry-over fuel load in the grasses. This grass load has shown an increased and earlier start to the fire season. Now coupled with a lack of moisture, these conditions are leading to fire restrictions in central and southern Utah.

"When I saw the first Single Engine Air Tanker's drop fly sideways, I knew it was going to be a ground game."

Incident Commander
Knolls Fire

The Magnitude of the Winds—Very Unusual

Both the Canal Fire and Knolls Fire reacted directly to an unseasonably strong cold front pushing down from the Pacific Northwest. Dispatch logs show problematic fire behavior occurring on both incidents within three minutes of each other—at approximately 1340 on June 28.

"The magnitude of winds—gusts of 50-70 mph for several hours—was very unusual for this time of year, not seen in at least the past several fire seasons in late June across Utah," informs Basil Newmerzhycky, Meteorologist-Predictive Services for the Great Basin Coordination Center in Salt Lake City.

"I remember getting out of the truck and seeing nothing—and then just the flashing lights from a cop car. I made the decision to keep the folks in the truck. We couldn't do anything in this wind."

Engine Boss
Canal Fire

The Canal Fire

On June 26 the Canal Fire started at 1600, located five miles north of the town of Oak City, Utah. The fire was burning in fuels typical of the area with grass, sage and sporadic juniper on flat, sandy ground.

Weather conditions were mid-90s with light winds for the area—10-12 mph gusting to 20 mph from the northwest.

After the initial attack, the Canal Fire was contained the next day, June 27, at 1530. The size was 450 acres. During the day of the June 27, resources focused on securing the line and mopping-up.

The Canal Fire burning on the night of June 28. The significant wind event that began that afternoon produced extreme fire behavior.

Resources Report 60 MPH Winds

On June 28, resources experienced some thunderstorm activity during the overnight hours. Upon beginning their shift, they got up onto a high point in the area to survey the surrounding area for new starts. Resources on the fire that day said their major concern was new activity, as the canal was looking in good shape.

Returning to the Canal Fire, resources continued mopping-up interior heat. The perimeter had been mopped-up and gridded to a depth of three chains (approximately 200 feet) and crews were working interior hotspots and smokes.

I remember trying to take a wind reading with my kestrel. It was just hard to hold, the wind was so strong, it was reading 61 mph."

Incident Commander
Canal Fire

This engine's door and "B" pillar received substantial damage when the winds ripped the door out of a crewmember's hands.

Around 1340, gusty SSW winds began impacting the fire. Resources reported 60-mile an hour winds at eye level, blowing sand, dust and ash—obscuring nearly everything. Visibility was reported to be 10-20 feet. Personnel on the north side of the fire noticed smoke through the dust and realized the fire had jumped the line. The call for a spot fire or slop-over was announced. The fire had crossed containment lines and was burning north with very heavy winds behind it.

Resources proceeded to the east flank in an attempt to prevent the spread across the highway to the northeast.

Upon arrival on the east flank of the fire, resources attempted to hold the fire on the highway but quickly realized that the winds and fire behavior were too aggressive for direct attack. During this time on the highway a crew member was exiting the engine when the winds ripped the door out of his hands. The winds folded the door open, resulting in substantial damage to the door and "B" pillar (see photo above).

During the wind event, the fire was producing extreme fire behavior. On June 28 an estimated 66,000 acres were burned.

The Canal Fire, managed by a Type 2 IMT, was finally contained on July 11 at 78,000 acres.

"It was chaos on the highway. You couldn't see the truck with its lights on."

Incident Commander
Canal Fire

Canal Fire Lessons

- While the wind event was forecasted, personnel reported being surprised by the ferocity of the winds.
- In the low visibility conditions, the decision was made to keep personnel near the vehicles while on the highway, which probably prevented folks from being hit by a vehicle.
- It was realized early in the wind event that the fire was lost, so prompt evacuations and structure protection actions were put into place immediately.
- In high winds, not only will retardant be ineffective, the pilots and bases may turn down the assignment. This was the case on the Canal Fire. The SEAT base turned down the order due to high winds.

Firefighters on the Canal Fire during the June 28 wind event.

Powerlines and railroad destroyed by the Canal Fire. Photo taken on June 30.

Post Fire – Photo shows the impact of strong winds near the Canal Fire area.

Firefighters on the Knolls Fire on the afternoon of June 28.

The Knolls Fire

The Knolls Fire was reported on June 28 at 1340, located a few miles south of the town of Saratoga Springs, Utah on the west side of Utah Lake. The fire was burning in mainly grass, sage and short brush. The area commonly sees fire activity due to heavy public traffic for recreational purposes. Therefore, many burn scars of various ages can be seen along Lake Mountain just south of Saratoga Springs.

"The wind hit us with a vengeance, fire was pushing hard to the city. We were always behind the curve."

Incident Commander
Knolls Fire

Engine on the Knolls Fire during the June 28 wind event.

Upon initial report of this fire start, fire activity was aggressive due to winds out of the south. Very early in this incident, the decision was made to begin evacuations of a portion of Saratoga Springs, approximately 3,100 residences.

Image shows how Saratoga Springs homes were saved from the Knolls Fire despite the wind event. (This is a screen shot from a KSL-TV Chopper5 video: https://www.facebook.com/watch/?v=914690202364645.)

Wildland and municipal fire departments responded to the Knolls Fire, with the municipal departments going to the subdivision for structure protection. The request was made for aerial resources, which was denied due to the winds on site as well at the tanker base. Aerial resources were also grounded on an incident 20 miles away due to winds.

Ground resources focused on structure protection using engines and small ignition operations to buffer the structures from the oncoming fire front. While one structure was lost on the south end of the fire, no homes were lost in the subdivision.

To see a structure protection video from June 28 on the Knolls Fire:

https://twitter.com/i/status/1277356436025008128

Knolls Fire Lessons

- Invest in local partnerships. Plan out and know exactly how mutual aid response will occur with local cooperators and fire departments when 911 is used.
- Plan out how to conduct evacuations on a two-lane highway. Utilize simulations to practice. Some issues to plan for include: dispatching procedures, evacuation centers, roles and responsibilities, etc.

Overall Lessons

- **Success**: Ordering resources through 911 on the Knolls Fire for structure protection instead of solely ordering through Northern Utah Interagency Fire Center. While this is not always the preferred route of communication travel, ordering through 911 resulted in fast response times to a very dynamic situation.

- **Success**: Firefighters on both incidents recognized the extreme conditions and took some tactical pauses. They didn't engage with a lack of situational awareness. (Example: on the Canal Fire, resources mentioned the lack of visibility or knowledge of where the fire was in relation to the road. They therefore got back in the truck to reassess.)

- **Challenge**: Reliance on standard firefighting orders: On these two incidents, firefighters couldn't realistically know where their fire was at all times.

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