

## Incident Summary Page for the 100 Fires Project

<b>Incident Name:</b> Carr Fire	<b>Incident Date &amp; Time:</b> 07/23/2018 @ 13:09
<b>Incident Location:</b> Highway 299 by Carr Powerhouse, 18 miles west of Redding, California	<b>Incident Size:</b> 299,651 acres
<b>Types of resources involved:</b> Numerous agencies and communities	<b># of Fatalities/injuries:</b> 3 firefighter & 5 civilian fatalities
<b>Reasons this fire was selected for the 100 Fires list:</b>	
<ul style="list-style-type: none"> <li>➤ 3 or more firefighter fatalities by entrapment</li> <li>➤ Civilian mass casualty event</li> </ul>	
<b>Conditions leading up to the event:</b>	
<p>Fire season 2018 saw the Northern Sacramento Valley plagued by abnormally dry conditions. The Redding Airport was 14 inches below normal precipitation levels, with the last significant rainfall occurring on May 25, and no measurable rainfall in June and July. The 1,000-hour (3-6") dead fuel moistures were at record lows with the Energy Release Component (ERC) values calculated at the 90% percentile, near record highs. The fuel types in the fire area are mixed conifer and California Black oak at higher elevations with Knobcone pine, manzanita, and oak woodland with annual grasses at lower elevations.</p>	
<b>Brief description of the event:</b>	
<p>The Carr Fire started on July 23 at 13:09 in the Whiskeytown Lake National Recreation Area. The cause was a travel trailer wheel assembly throwing pieces of hot metal on the north side of Highway 299 starting three fires near the Carr Powerhouse Road.</p> <p>At the inception of the incident, the National Park Service and the CAL FIRE Shasta Trinity Unit coordinated a Type 3 incident management team (IMT) under unified command. Fire behavior was moderate with spread primarily influenced by topography and fuels; suppression actions were successful along Highway 299 and within the community of French Gulch.</p> <p>On July 24 around 17:00 hours a west wind surfaced over the upper ridges pushing uncontained portions of the fire more than two miles to the east in six hours while jumping a seven-blade wide dozer line.</p> <p>On July 25 at 17:00 hours a west wind again resurfaced pushing the fire to the east another two miles in seven hours as well as progressing south two miles and becoming established in the Whiskey Creek drainage.</p> <p>On July 26 at 07:00, the fire transitioned to CAL FIRE Type 1 IMT. During the day, fire behavior was mainly fuels driven with slope runs; and moderated under a ridge of high pressure with little wind. At approximately 17:30 hours, west winds resurfaced, pushing the fire rapidly to the east. Major fire runs occurred in more than one location, and the fire was observed moving at 2.5 miles per hour with spot fires becoming established over one mile ahead of the main fire front. A large fire plume developed over the area, reaching approximately 40,000 feet in height.</p> <p>On the evening of July 26, the fire experienced rapid growth when fuels, weather and topography aligned with a thermal low, creating an intense fire vortex. The vortex was determined to have wind speeds more than 165 mph, the equivalent of an EF3 tornado. The fire jumped the Sacramento River, making its way into the city of Redding, causing the evacuation of 38,000 people. Evacuations also took place in Summit City, Keswick, Lewiston, Shasta Lake City, Igo, Ono, and French Gulch.</p> <p>During this run two firefighters were killed. One was contract dozer operator Donald Ray Smith, who was entrapped constructing fireline. The second was fire inspector Jeremy Stoke; he was caught in the fire tornado on Buenaventura Avenue in the city of Redding.</p> <p>The Carr Fire was one of the most destructive wildfires in California history. Final containment was on August 30 at 299,651 acres; eight fatalities, 38,000 people evacuated, 1,604 structures destroyed resulting in \$1.7 billion dollars in damages and suppression costs. The entirety of the Whiskeytown National Recreation Area was burned with numerous park facilities destroyed.</p>	
<b>Fire behavior factors that were present during the event:</b>	
<p>On July 26, at 18:00 the Mule Mountain RAWS at 2044 foot elevation and approximately four miles from the accident sites recorded a temperature of 111°F with the relative humidity lowering to 7%. Gusty west-northwest winds picked up during the late afternoon and evening hours. Gusts as high as 21 mph were recorded. Multiple fire whirls combined to create an EF3 fire tornado.</p>	

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### Operational lessons available for learning from this incident:

A thermal low pattern can occur in several areas around California where topographic features support a large-scale hot/cold interface and downhill wind events. Some examples include the Sundowner winds in the Santa Lucia and Santa Ynez Mountains on the Los Padres National Forest and the eastside escarpment on the Plumas National Forest with an interface between Honey Lake and Thompson Peak. Other notable fires that have been influenced by this pattern include the 1989 Eagle Fire near Honey Lake with several firefighters burned during an evening downhill wind event and the 1953 Rattlesnake Fire on the Mendocino National Forest where 15 firefighters perished during a nighttime downhill wind event.

An EF3 fire tornado is a significant event in any environment. Have a plan of action when a thermal low is overhead which may lead to an extreme fire environment. Read the reports for the 2008 Indians Fire on the Los Padres National Forest.

### Notable impact or historical significance for the wildland fire service from this incident:

Not applicable

### Links to more information on this incident:

[https://www.weather.gov/hun/efscale\\_explanation](https://www.weather.gov/hun/efscale_explanation)  
<https://lessons.wildfire.gov/index.php/incident/carr-fire-entrapment-fatalities-2018>  
<https://lessons.wildfire.gov/index.php/incident/carr-fire-dozer-rollover-2018>  
<https://lessons.wildfire.gov/index.php/incident/carr-fire-after-action-review-2018>

Videos:

- <https://calfire.app.box.com/s/7z61vrl2esxe4t9q9zml6edevcdl61wb>
- <https://www.youtube.com/watch?v=wEpW24WIgR8>

**This summary page was proudly provided by:**  
Don Will, former Superintendent Mendocino Hotshot Crew

April 2024

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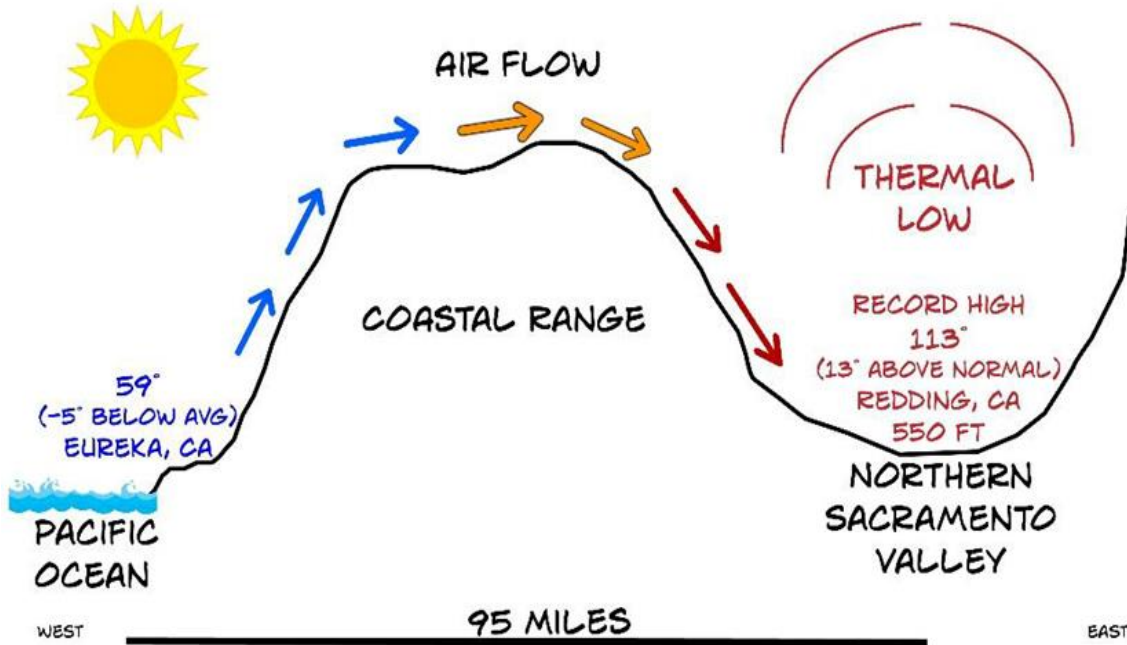


**Memorial sculpture and plaque located at “Top of the World” on Skywalker Drive in Redding, California**

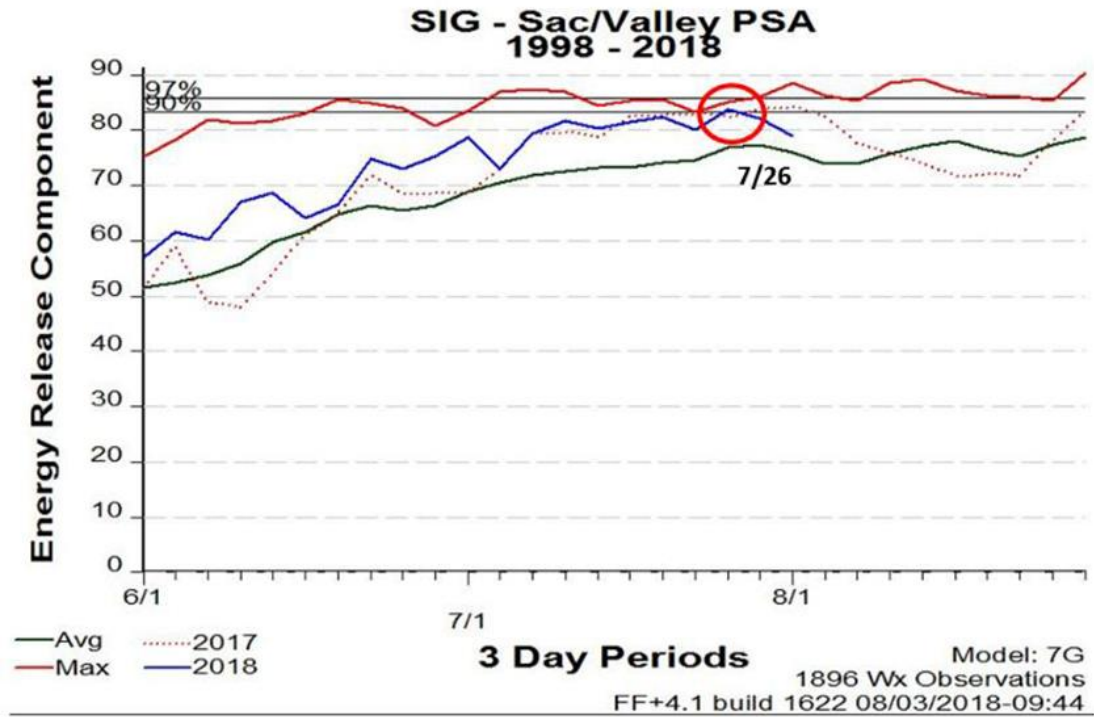
Jeremy Stoke, 37, Redding Fire Prevention Inspector	Jarius Ayeta, 21, PG&E lineman
Donald Ray Smith, 81, contract dozer operator	Daniel Bush, 62, civilian
Andrew Brake, 40, Cal Fire heavy equipment mechanic	Melody Bledsoe, 70, civilian with her great-grandchildren

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James Roberts, 5 and Emily Roberts, 4

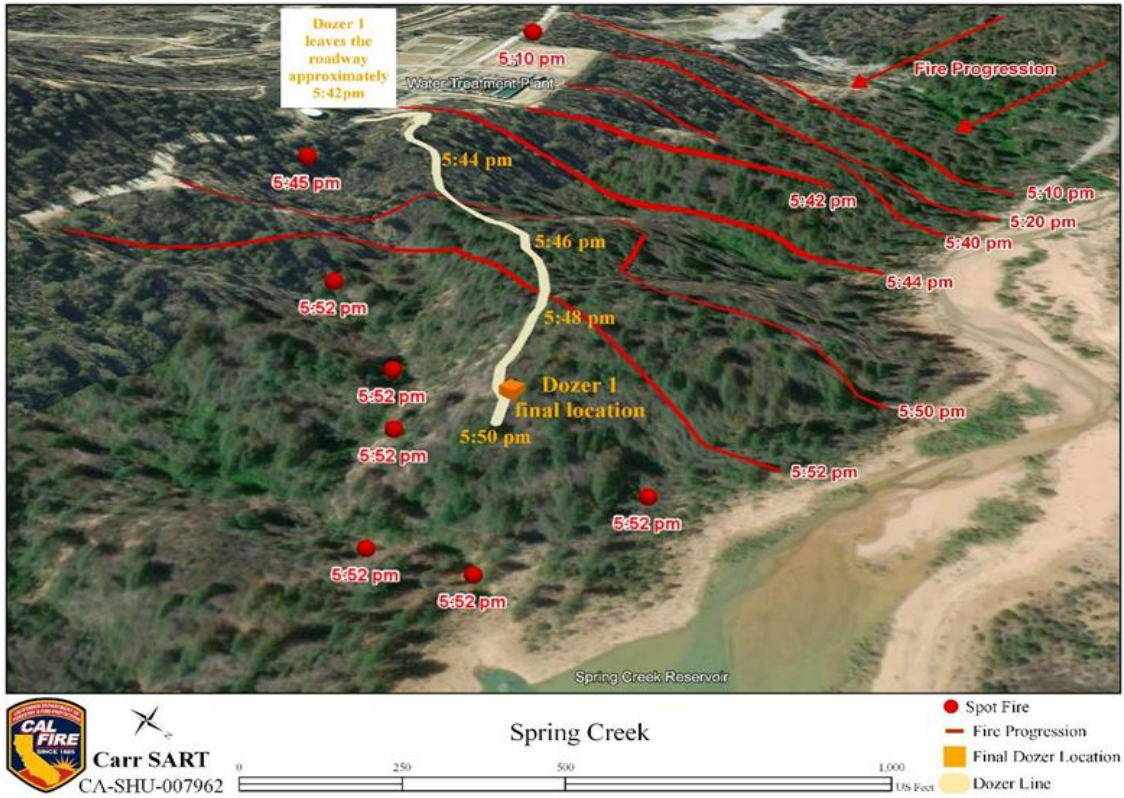


Thermal Low that was in place during the Carr Fire

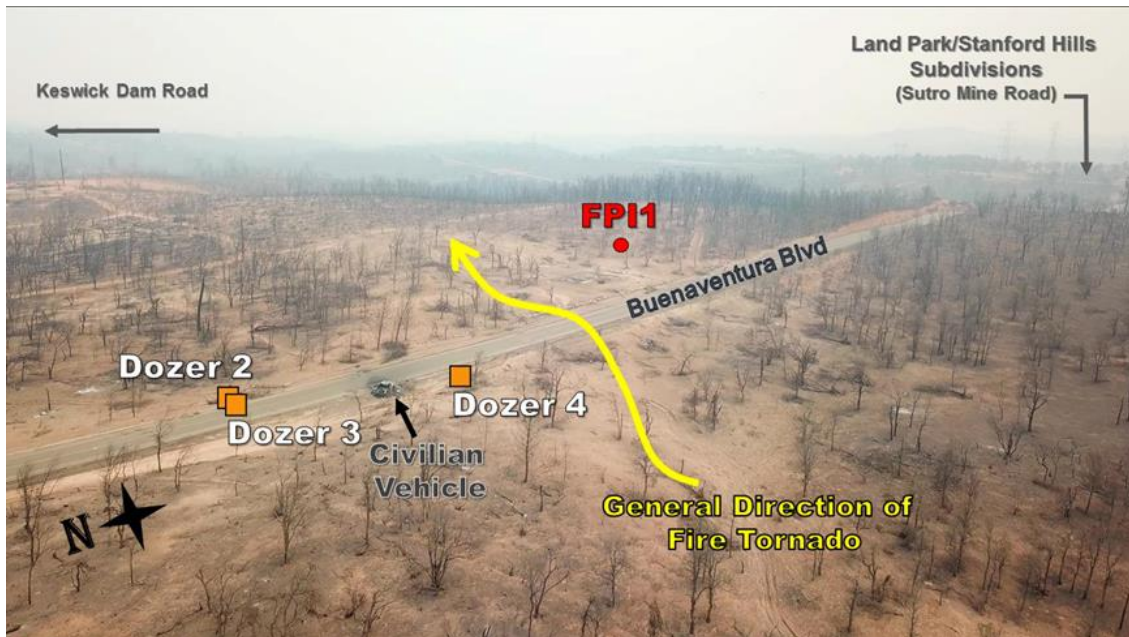


Energy Release Component graph with data point marking the July 26 events

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Dozer Operator Donald Smith fatality site



Redding Fire Prevention Inspector Jeremy Stoke fatality site