

## Incident Summary Page for the 100 Fires Project

<b>Incident Name:</b> Dude Fire	<b>Incident Date &amp; Time:</b> 06/26/1990 @ 14:30
<b>Incident Location:</b> Payson Ranger District, Tonto National Forest, Arizona	<b>Incident Size:</b> 24,174 acres
<b>Type of resources involved:</b> State of Arizona Inmate fire crew	<b># of Fatalities/injuries:</b> 6 fatalities / 4 injuries
<b>Reasons this fire was selected for the 100 Fires list:</b>	
<ul style="list-style-type: none"> <li>➤ Fire made a notable impact within the wildland fire service</li> <li>➤ 3 or more firefighter fatalities</li> </ul>	
<b>Conditions leading up to the event:</b>	
<p>At approximately 12:30 on June 25, 1990 a dry lightning storm started a fire just below the Mogollon Rim on the Payson Ranger District of the Tonto National Forest. At 13:15 the fire was sighted and reported to be 5 acres. One hour later the fire was reported as 50 acres and by 16:15 it was reported as 100 acres with a spot fire one mile to the east. At 15:00 a Type 2 Incident Management Team (IMT) was ordered and by 18:00 the team was on the fire. At 21:05 a Type 1 IMT was ordered. By 06:00 on June 26 the fire was approximately 1900 acres; the Type 1 IMT had arrived, received the Line Officer Briefing, and some members were beginning to “shadow” the Type 2 IMT resources on the fireline with a team transition time set for 13:00 that afternoon.</p> <p>Fuels in the area are primarily Ponderosa pine with an understory of mixed oak, manzanita, needle and leaf litter, and scattered dead logs. Much of the understory brush was heavily draped with dry pine needles. Live fuel moisture in the manzanita and oak was very low at 76%. Fine dead fuel moisture was 3% and 8% for larger dead fuels.</p>	
<b>Brief description of the event:</b>	
<p>The Perryville Crew from the Arizona Department of Corrections arrived on the fire at 19:30 on June 25. This inmate crew was led by Crew Representative Dave La Tour from the Tucson Rural Metro Fire Department and included two State of Arizona Correctional Service Officers. After checking in and eating at the main camp they drove to the Bonita Creek Subdivision arriving there around 01:00 on June 26. They were relocated to the junction of Walk Moore Canyon and Forest Road 64, more commonly called Control Road. Their assignment was to construct indirect handline towards the Bonita Creek Subdivision; they were in place and began line construction at 02:30. The line construction was completed to the subdivision by 05:00. Perryville then spent the morning working in the subdivision and took a meal break.</p> <p>At 10:30, Perryville was instructed to improve their original line, which had now been bladed by a dozer, back down Walk Moore Canyon to the Control Road anchor point. This line improvement assignment was in preparation for the firing operation which was being conducted by several hotshot crews. The plan was to secure a line south from the Mogollon Rim, in front of the Bonita Creek Subdivision, and then down Walk Moore Canyon to Control Road.</p> <p>The Operation Section Chiefs from both the Type 2 IMT and the Type 1 IMT met in the Bonita Creek Subdivision at about 12:00 to work out the team transition. The Type 1 Operations Section Chief made new Division Supervisor assignments and then walked down the Perryville line in Walk Moore Canyon. En route he met the local district Fire Management Officer and they walked together the rest of the way out, arriving at the Control Road anchor point at 14:15.</p> <p>At this time there were three crews in Walk Moore Canyon and the Bonita Creek Subdivision. Alpine IHC was adjacent the subdivision, Perryville was working from the subdivision down towards the Control Road and the Navajo Scouts 2 were working from the Control Road up towards Perryville.</p> <p>By 13:00 Perryville had worked about a third of the way back toward the anchor point when they ran out of water and were low on saw fuel. Correctional Service Officer Larry Terra, at this time acting in the role of Crew Boss, left Correctional Service Officer Sandra Bachman with the crew, took firefighter Fred Hill, and walked down to the Control Road for water and saw fuel. From the anchor point road intersection Terra and Hill sent the supplies up the line on an ATV and began to walk back towards the crew. When the ATV with water and saw fuel arrived, Perryville gathered to refill canteens. This location was 3,300 feet up Walk Moore Canyon from Control Road. After refilling their canteens the crew returned to work just up canyon of the refill site.</p> <p>In the time window of 13:00 to 14:00 several notable events were occurring near Walk Moore Canyon that have uncertain time tags: there were several reports of spot fires over Control Road; at one point several IMT personnel in the Bonita Creek Subdivision found they had been cut off by the fire and could not get out of the subdivision; and following this, two dozers were directed to construct a safety zone in the burn adjacent to the subdivision.</p> <p>During this time personnel at various locations on the fire, including Terra and Hill, reported light rain sporadically falling. This sporadic rain was from a convection column which had been building, hidden from many personnel by smoke and terrain, over the fire since morning. By 14:00, the column began to collapse, initiating outflow winds throughout the fire area. At 14:20 Edison Notah, the</p>	

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Navajo Scouts 2 lookout yelled “*Get out!*” as the fire, driven by the outflow winds, made a run from below them. The Perryville crew members and Navajo Scouts 2 crew members began to run down Walk Moore Canyon towards the Control Road.

The Navajo Scouts 2 crewmembers all made it to the Control Road anchor point and safety. However, fire rapidly crossed the Walk Moore Canyon line and cut off 11 members of Perryville before they could escape down to this anchor point. As these firefighters began to run back up the line, the order to deploy was quickly given and they deployed their shelters spread out on or near the fireline. Five of the firefighters on Perryville survived their fire shelter deployment. The remaining five Perryville firefighters, James Ellis, Joseph Chacon, Alex Contreras, James Denney, Curtis Springfield and Correctional Service Officer Sandra Bachman all perished.

#### Fire behavior factors that were present during the event:

This fire occurred just in advance of the annual monsoons for that area. The dry fuels, high temperatures, poor nighttime humidity recovery, and rapidly changing weather conditions in the Southwest during this time of year offer some of the most challenging firefighting conditions to be found anywhere.

The 122 degree temperature measured in Phoenix, Arizona on June 26, 1990 is still the hottest day ever recorded there.

A convection column, aided by thermal energy and moisture from the combustion, began forming over the fire around 10:00 and continued to expand until around 14:00. When this column reached maturity it began to breakdown. As the column collapsed, the fire was pushed approximately 1.5 miles in 30 minutes. It was this event which overran the Perryville crew.

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

Ensure dedicated lookouts can continuously monitor the fire and have direct communication capability. Crews in the Walk Moore Canyon area did not have lookouts in good positions and their vision from the canyon bottom in the smoke was limited.

When a convection column begins to breakdown it can create strong downbursts, these outflow winds cause extreme down and side slope fire runs and these winds can also be felt miles away when channeled by topography.

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

The Dude Fire played a large part in the current standard of not initiating IMT transitions during the middle of a shift. An excerpt from the investigation report reads: “*The Type I Team planned to “shadow” the Type II from 0600 to 1300 and take over the incident at 1300 hours.*” In 1990 this was a standard and common practice.

“Frequency agile” programmable radios were just entering the wildland fire service by 1990 and some were in use during this fire. The communication issues highlighted in the investigation played a large role in wildland fire agencies moving to all frequency agile radios with grants being earmarked for cooperators outside of the federal agencies to purchase this capability.

This fire was a major driving factor in the National Wildfire Coordinating Group (NWCG) requiring annual fire shelter training to include a 30 second timed practice shelter deployment.

The fire behavior indicator system *Look Up, Look Down, Look Around* was developed in response to this fire.

The LCES concept (lookout, communication, escape routes, and safety zones) emphasizing the key safety measures found in the “10 Standard Firefighting Orders” was formalized in response to this fire.

Research on plume-dominated fire behavior was prompted by this event and became part of the NWCG fire behavior training curriculum. In addition, the Haines Index measuring atmospheric instability became a standard component in fire weather forecasts.

#### Links to more information on this incident:

<https://www.nwcg.gov/wfldp/toolbox/staff-ride/library/dude-fire>

<https://www.nwcg.gov/committee/6mfs/dude-fire>

<https://www.nwcg.gov/sites/default/files/wfldp/docs/sr-dude-blowup.pdf>

<https://www.nwcg.gov/sites/default/files/wfldp/docs/sr-dude-fire-mike-johns-2009.pdf>

<https://wlfalwaysremember.net/1990/06/26/dude-fire/>

[https://wildfiretoday.com/?s=dude+fire&monthnum=&year=&states\\_provinces=&countries=&topics](https://wildfiretoday.com/?s=dude+fire&monthnum=&year=&states_provinces=&countries=&topics)

Video:

- <https://www.youtube.com/watch?v=R5Bmxnt3IjQ>

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The Wildland Fire Lessons Learned Center offers an excellent site which provides information on many wildland incidents:  
[Wildland Fire Lessons Learned Center's Incident Review Database \(IRDB\) \(wildfire.gov\)](https://www.wildfire.gov/wildland-fire-lessons-learned-center/incident-review-database)

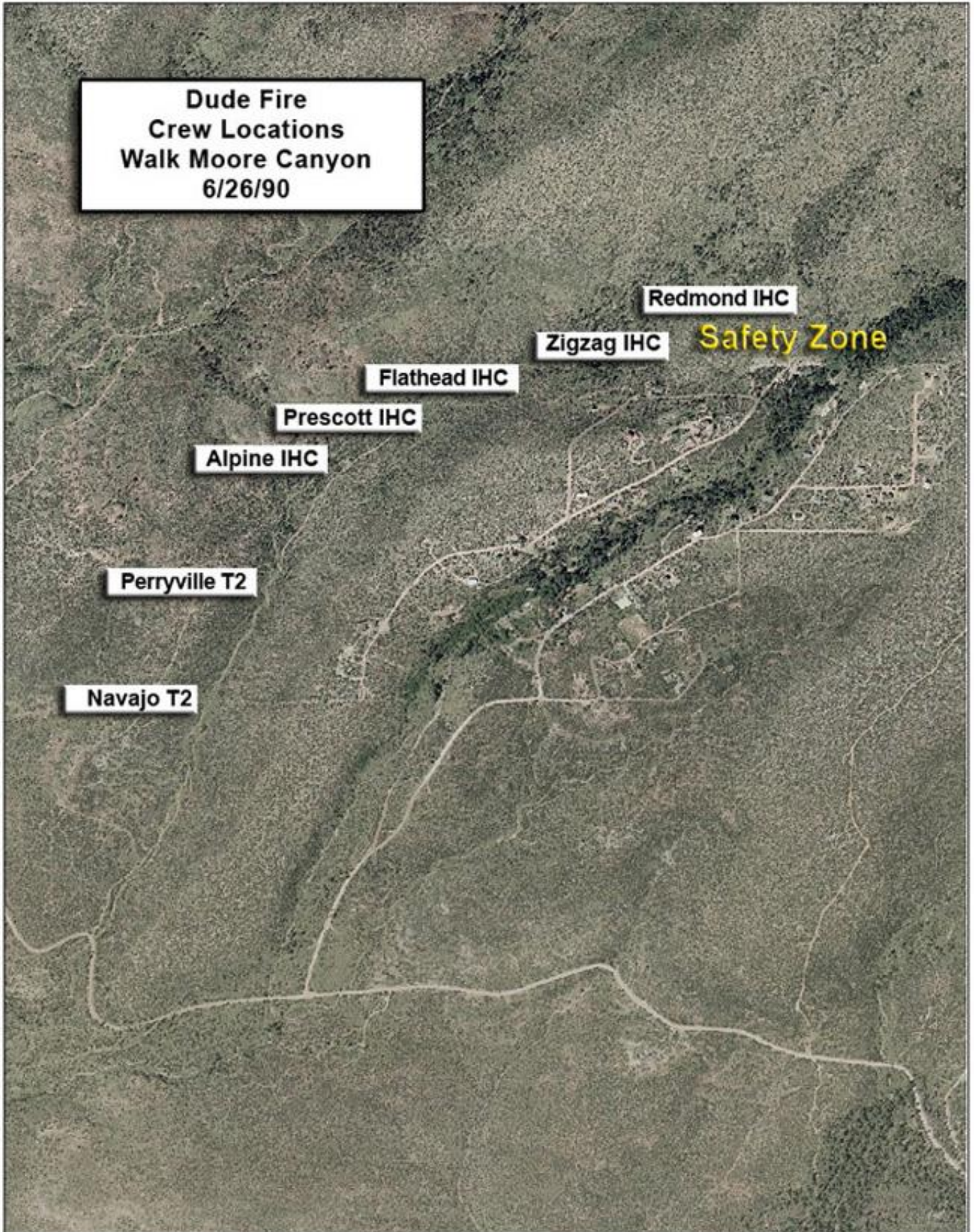
This summary page was proudly provided by:  
Jim Cook & Kurt La Rue

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Memorial at the entrance of Bonita Creek Subdivision for the firefighters who perished on the Dude Fire in June 1990

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