

In the Heat of the Moment



“Okay, everybody out of the canyon!” radioed Don Mackey to his beleaguered firefighters. For hours, they had been clearing a corridor on Storm King Mountain to thwart a spreading wildfire. Now that path had become the crew’s only way out. Eighteen people were sprinting for their lives. Could they reach safety? **A CASE STUDY IN LIFE-AND-DEATH DECISION-MAKING. BY MICHAEL USEEM**

LOOK BACK IN SORROW A firefighter glances at the blowup that took a dozen lives in 1994. He survived.

The summer of '94 baked central Colorado in a heat rarely seen on the mountains; drought dried out the earth, leaving it gasping for moisture—and prone to ignition. On the morning of July 2, Storm King Mountain began to burn. By July 4 the resulting fire had spread to perhaps three acres, a relatively small and slow-moving blaze—and one, local officials decided, that could wait while they put out dozens of more serious ones.

It was not until the morning of July 5 that the first firefighters ventured up to contain it. Less than 36 hours later, 14 of them were dead. Elite members of a caste of itinerant warriors who battle in hard-hats and chainsaws against one of humanity's oldest

enemies, these ten men and four women were consumed by a wall of fire that moved almost 20 miles an hour.

The crisis on Storm King Mountain was not only a natural disaster, it was also the product of human actions. A firefighter named Don Mackey made several of the big decisions—some good, too many of them bad, at least one of them heroic. Mackey was a product—you might even say a victim—of a system that had failed to teach how to make good decisions. For years the agencies responsible for wild-land firefighting had focused on fire behavior rather than human behavior—akin to a business's concentrating on engineering rather

Anatomy of a Tragedy

It started as a routine forest fire; there were dozens of more serious blazes in Colorado in the drought-ridden summer of '94. But Storm King ended up as the deadliest. Smokejumper Don Mackey made nine key decisions on that terrible day.

16.5 HOURS ← Time until blowup



Decision 1

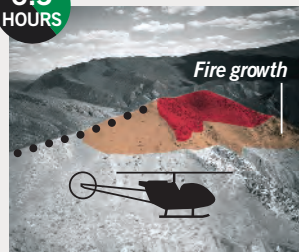
At 11:30 P.M. on July 5, with the fire intensifying, Don Mackey radios a request for two more firefighting crews.

10.5 HOURS



2 Around dawn on July 6, Mackey asks for continuous aerial surveillance of the fire. The request is denied.

6.5 HOURS



3 At 9:30 A.M., Mackey and Butch Blanco, leader of another crew, conduct their own reconnaissance in a helicopter assigned to the fire.

6 HOURS



4 Mackey proposes to cut a fire line below the flames on the west flank of the ridge—a risky strategy to which Blanco agrees.

2 HOURS



5 Mackey wonders who is in command but does not clarify the situation. One possible result: No lookout is posted.

1.5 HOURS



6 A local weather forecast predicts strong winds but no rain; Mackey does not receive or ask for the forecast.

30 MIN.



7 Mackey orders Sarah Doehring to the top of the main ridge. Thanks to this order, she survives.

6 MIN.



8 Sensing an imminent blowup, Mackey directs eight firefighters to Lunchspot Ridge. They all survive.

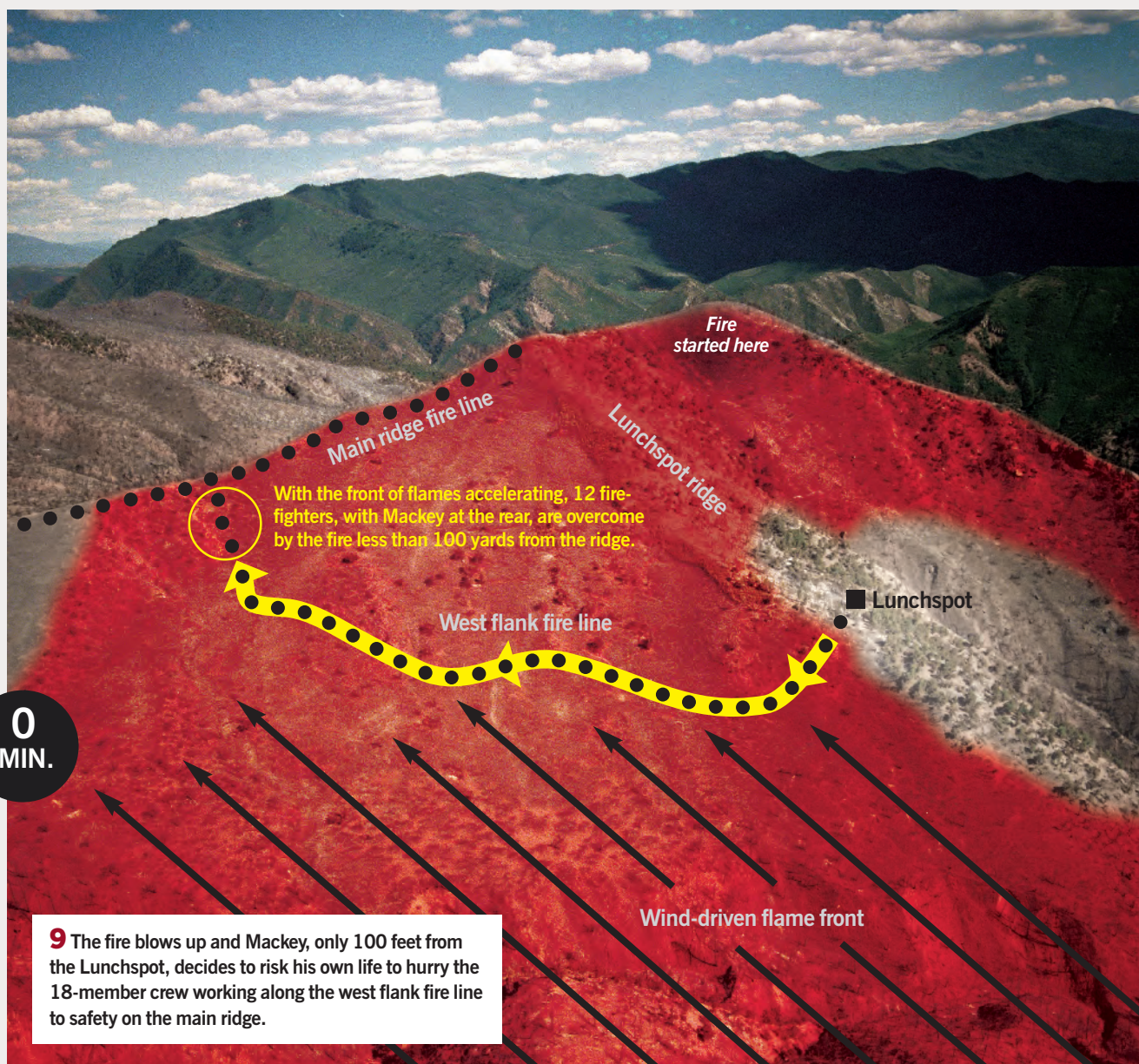
than customers. Though earlier tragedies had often hinged on human error, the recommendations sent forth were usually technical. The result was that Mackey and others hit the mountain with state-of-the-art gear but scant training in how to make decisions under pressure.

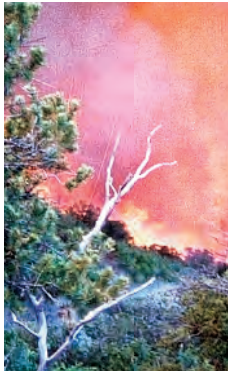
As in most disasters, no single decision was responsible for the outcome on Storm King Mountain; instead, it was the result of a cascading series of smaller ones. One of the tragedies of Storm King is that the errors could have been avoided: Overoptimism. Untested assumptions. Unheeded warnings. Poor intelligence. Failure to clarify authority. The “collapse in decision-making” was

“almost automatic,” a U.S. Forest Service researcher argued afterward.

At NASA, it took a second space-shuttle explosion to convince the agency that its problems weren’t just technical but also organizational. And it took Storm King Mountain to change the way forest fires are fought. Today wild-land firefighters are schooled extensively in how to make timely decisions under complex and stressful conditions. Trainees walk in the footsteps of Don Mackey. They pause at the spot where he yelled his final instruction. They sprint uphill while a stopwatch runs. They imagine what a wall of flame must look like when it’s moving 20 miles an hour. And they often

A cascading series of small decisions led to the disaster on Storm King Mountain.





SARAH DOEHRING

A GATHERING STORM
Fed by vegetation, the blaze intensifies during the afternoon.

end up, panting, at a granite cross that marks the spot where Mackey fell—and near which his father camps every year to commemorate the anniversary of his son’s death.

Normally, as a business-school professor, I do my research into leadership and management in more austere surroundings. But by examining nine key moments in the Storm King fire, I sought insight into what can inspire great decisions and poor ones. The decisions made by smokejumpers—parachuting firefighters—are unusually clear-cut and consequential. At root, however, they are not unlike decisions faced by managers. Faulty decisions helped bring down Enron and WorldCom. Good decisions have driven the success of companies like eBay and Southwest.

With that in mind, and in the company of 17 wild-land firefighters, I walked the slopes of the 9,000-foot mountain, located 40 miles northwest of Aspen, to learn its lessons. More, I wanted to understand what conditions can help leaders make the right call, even under extreme circumstances. What follows is a reconstruction, drawn from interviews, research, and reports, of the events that led to one of the worst days in the history of wild-land firefighting.

As first light dawned on July 5, Butch Blanco, 50, a veteran firefighter with the U.S. Bureau of Land Management (BLM), hiked up Storm King Mountain to evaluate the situation. Just a few months before, Blanco had qualified as an incident commander, the person who takes charge of a fire. A former city firefighter, Blanco was known for giving a long leash to his crews when it came to getting the job done. (Blanco declined to speak with FORTUNE.)

Presently he and his team of seven began digging a line around the slow-moving fire. Using picks, shovels, and saws, they scraped the earth clean—one person rooting out the vegetation, another chucking it to the side. The idea was to create what is known as a fire line—a thin strip where the fire has nothing to feed on and thus cannot cross. But this blaze was more tenacious than Blanco expected, and at 8:19 A.M. he radioed for more help.

Since Blanco’s fire was still not a priority—there were many bigger ones in the area—it was not until 5:20 P.M. that an eight-person crew of smokejumpers finally boarded a small plane. The jumper nearest the door was Don Mackey, 34. The father of two, Mackey had eight seasons of smokejumping under his belt and had also served as an instructor. Strong and well built, with the look of a mountain man, Mackey was regarded as a good smokejumper. Seated next to him was Sarah Doehring, a slightly built but tensile-strong woman from upstate New York whom Mackey had helped train. “He was easygoing, a likable guy, the kind of guy we enjoyed being around,” she said of Mackey. And as a firefighter, “he was very competent.” Doehring remembers thinking that it “could be difficult down there” but was reassured by her teammate’s confident demeanor.

At 5:45 P.M. the smokejumpers left the plane. Because Mackey happened to be sitting in the seat nearest the door, he leaped and landed first. That made him, in accord with a protocol that interpreted “leadership” in the most literal sense, “jumper-in-charge.” He would coordinate the landing and prepare the crew to go into fire combat; the fire itself was still Blanco’s responsibility. Blanco and his crew, however, had trouble with their chainsaws and were unequipped for a night on the mountain. They descended to the town of Glenwood Springs for the evening.

The fire was not resting. The flames crossed the fire line Blanco’s crew had cut, growing from 30 acres to 50. Mackey went into action against the blaze. “We all thought we were going to dig a line around it by midnight” to contain the fire, said Doehring. But it continued to spread, and Mackey realized he needed more firefighters. In Blanco’s absence he took the initiative, radioing a request at 11:30 P.M. for two more crews (see “Decision 1” in timeline).

The cold mountain ridge permitted only fitful rest. Wide awake at 2 A.M., Mackey worried that the fire was burning especially hot for that time of night. As dawn broke on July 6, he therefore asked for aerial surveillance (Decision 2), a fixed-wing aircraft that would serve as a full-time “eye in the sky.” Officials informed Mackey that none was available; instead he got the services of a light helicopter that would have to do double duty ferrying gear as well as monitoring the fire. The effect was to leave him partially blind.

Early on the morning of July 6, Butch Blanco reappeared on the ridge with a crew of 11. In his absence, Mackey had made all the right moves: He’d tracked the fire vigilantly, secured more crew, and requested aerial intelligence. Now he and Blanco huddled. Deciding they needed better information before settling on a strategy, they boarded the helicopter at 9:30 A.M. to get a better sense of the fire (Decision 3). What they saw was worrisome. The blaze had expanded to 125 acres and was creeping down the west flank of the ridge. Mackey now proposed a bold plan (Decision 4). He wanted to cut a fire line very close to the flames—below them, since flames can climb a slope faster than a person can—on the west flank of the ridge. Before turning left and extending horizontally across the slope, the line would cut sharply down for its first 300 feet. The downward gradient reached 55%—a one-foot drop in elevation for every two feet forward—making for a tough return climb.

Blanco agreed with the strategy and Mackey prepared for action. In retrospect, this was a crucial moment in which two important things happened. First, Blanco effectively—though not officially—ceded some of his authority to Mackey, who became the point man on how to deal with the downhill fire line. And second, both men committed themselves to a strategy at odds with several established rules.

“Let me have a big crew and we’ll do this. We’ll do fine,” Mackey said.



TONY PETRILLI—USDA FOREST SERVICE

SMOKEJUMPERS
cut a fire line on Storm King in July 1994.

How did this apparently ordinary fire turn the mountain into a killing ground?

“Downhill fire line construction is hazardous in steep terrain, fast-burning fuels, or rapidly changing weather,” warns the wild-land firefighters’ manual. All three conditions prevailed in the canyon. The manual also cautions against relying on a steep uphill escape route. But since the crews were already on top of the ridge and could not readily redeploy to the bottom, cutting a downhill fire line seemed the pragmatic way to go.

Still, some of Mackey’s team considered this a dangerous call. “You sure you want us to do that?” one radioed back. “Go down that side?” Mackey reaffirmed the decision, to be challenged again: “Are there any safe spots down there?” “It doesn’t look too bad,” Mackey responded. Again, his smokejumpers hesitated. “We’re going to wait for you to come down here and explain some stuff to us,” said one.

Face to face with his crew, Mackey noted that the vegetation became sparser down the hill. In any case, he argued, the fire would run back uphill—in the unlikely event it surged out of control. “Let me have a big crew and we’ll do this. We’ll do fine,” he said. Mackey’s confidence got the crew moving. At 11:30 A.M., armed with saws, axes, and shovels, they began to cut and scrape a new fire line.

This moment of decision illustrates an important aspect of leadership dynamics. Seasoned urban firefighters, research shows, tend to break some firehouse rules between fires but go by the book during them. Beginners are more likely to stray. Don Mackey was serving as a de facto incident commander—something he had never done before. Butch Blanco was also new to command. In this re-



MICHAEL GALLAGHER—AP

REST IN PEACE
Mementos and a cross commemorate the spot where Mackey fell.

guard they were both beginners, and as such they lacked the leadership experience that can build a robust sense that the worst can, in fact, happen. Standard operating procedures are intended to guard against just that, but there was no veteran in authority to insist on them.

An hour later eight more smokejumpers floated down onto the ridge. More than two dozen firefighters were now deployed on the ridge—Blanco’s 11, Mackey’s eight, and the eight newcomers. At 1 p.m. an elite team of “hotshots” from Oregon landed. With four different teams on the mountain, the question of who exactly was in charge was muddled. Mackey was now directly supervising 24 people, including the hotshots, over whom he had no authority, formal or otherwise. Was this his fire now, Mackey wondered? At 2 p.m. he asked fellow smoke-

jumper Kevin Erickson whether he thought Butch Blanco was the incident commander or Mackey himself. “I don’t know,” Erickson responded. “Neither do I,” said Mackey. But he took no steps to clarify the issue (Decision 5).

The lingering ambiguity may explain the reason no one posted a lookout. Under standard firefighting procedure, a crew leader must establish a lookout to ensure that no flames are burning below a fire line. Incident commanders are expected to be aware of the entire environment as it evolves. Acceptance of that responsibility here would have dictated the assignment of fire lookouts, radio contact with all parties, and checking out the situation personally. “Look up, down, and around” exhorts the fire manual.

When authority becomes diffused or confused, the chances of a crucial matter’s being overlooked rise sharply. In the event, Mackey’s view of the fire line was blocked by a vertical cleavage known as Lunchspot Ridge. Concealed beyond that ridge, the fire had already burned down below the level of the fire line. Had there been a well-posted lookout—or the surveillance plane Mackey never got—the radios would have been crackling with warnings.

Because Blanco concentrated on controlling the fire at the top of the ridge and Mackey on completing the fire line lower down, neither had an overall view of the developing situation. Thus neither sensed that the canyon could be on the cusp of a blowup—a rare phenomenon when a fire suddenly bursts across the landscape. Exploding in seconds, the blowup “is one of nature’s most powerful forces, equivalent to a mighty storm, avalanche, or volcanic eruption,” writes John Maclean in *Fire on the Mountain*, a book on the Storm King disaster. “It can sweep away in moments everything before it, the works of nature and of humankind, and sometimes humankind itself.”

Unbeknownst to the crews, nature was brewing one more dangerous element. The local meteorologist predicted that a cold front would surge through around 3 p.m., generating no rain but plenty of wind. Due to bureaucratic bungling, the message never arrived—and Mackey did not ask for it (Decision 6). No warning light flashed in the back of his mind from prior experience or training to alert him to the risk of a missing weather forecast. These two decisions—not to clarify his leadership responsibilities and not to ask for weather updates—were closely connected. If Mackey had felt certain that he was in charge, he might have felt compelled to seek the data—and then he would have known to protect those on the fire line from the anticipated currents.

At 3:30 p.m., Mackey took note of the rising winds, and he assigned Sarah Doehring to patrol the west flank fire line for burning debris and hot spots. He also sat a few minutes with her for a bite to eat. Though outwardly relaxed, he had much

on his mind. “What should I do if the wind comes up?” asked Doehring. “Go down,” he instructed. As they stood up, Doehring began to resume her patrol toward the far end of the fire line, when Mackey changed his mind and ordered her back to the top of the ridge (Decision 7). Feeling tense about the worsening conditions, Doehring was relieved to turn around—an act that saved her life. Most of the other firefighters on the fire line remained working between 1,450 to 1,880 feet from the ridge top.

By 4 P.M., smoke swirled, flames churned, air thundered—all the classic signs of a blowup. A 1998 Forest Service analysis said, “The fire began burning through the live fuel canopy as a continuous flaming front.” The front came surging from both below and the far end of the fire line. In an instant Mackey stopped fighting the fire and raced to survive it. Grasping the acute danger, he instructed eight nearby firefighters to run directly up Lunchspot Ridge to an area where he knew there was sufficient ground cover to serve as a safe zone. “Go up!” he shouted. “There’s good black farther up” (Decision 8). They would find the “good black” and survive by huddling inside their portable fire shelters.

Mackey himself did not run up to safety. Instead he dashed back along the fire line to rush the firefighters still there across the line toward safety (Decision 9). He radioed ahead: “Okay, everybody out of the canyon!” In running back across the fire line—rather than directly up Lunchspot Ridge—Mackey had taken the leader’s ultimate decision. At a moment when his self-preservation must have screamed, “Run up!” he instead returned to assist those most in peril.

At Mackey’s urging, six firefighters crested the ridge top with seconds to spare. One of them, author Sebastian Junger recounts in *Fire*, was Brad Haugh. “The fire blew up behind a little ridge below me,” Haugh reported. “People were yelling into their radios, ‘Run! Run! Run!’ I was roughly 150 feet from the top of the hill, and the fire got there in ten or 12 seconds. I made it over the top and just tumbled and rolled down the other side, and when I turned around, there was just this incredible wall of flame.”

Mackey and the rest were not far behind, but the steepness of the hill meant that they were not moving fast—perhaps one to three feet per second. The

fire, meanwhile, was coming at nine feet per second. At 4:16 it caught up with them. A surging 300-foot wall of flame overtook nine of the Oregon hotshots and three smokejumpers, including Mackey. They were less than 100 yards short of safety.

It took five more days to bring the fire under control. The final death toll was 14 (two died elsewhere on the mountain), making it one of the deadliest forest fires in U.S. history.

Six months later, Ted Putnam, a researcher with the U.S. Forest Service, wrote a paper on the tragedy. Putnam did not hesitate to affix blame—but none of it was directed at the firefighters themselves. It was directed at the committee that had released the official report. Their recommendations had focused on the technical aspects of fighting a fire, such as developing better fuel inventories, improved weather forecasting, and more accurate fire prediction. “These tried-and-true solutions,” Putnam wrote, “simply fail to deal with a major cause of the fatalities. We lost firefighters on Storm King Mountain because decision processes naturally degraded. At this time we do not have training courses that give firefighters the knowledge to counter these processes.”

Today that is no longer true. There is a weeklong course, Incident Leadership, designed for veteran wild-land firefighters. Emergencies are simulated, roles assigned, and performance evaluated, sometimes harshly, by peers and experts. Would-be incident commanders are taught how to construct a safe fire line, detect decision errors, and cope with ambiguous authority. It is the course Don Mackey should have taken—but it did not then exist.

The rules are different too. No longer is the first smokejumper on the ground automatically in charge; now it is the most experienced person. And firefighters are trained to refuse excessive risk. The lesson that the fire services took away—and from which others can learn—is that how decisions are made affects the quality of the decisions. Don Mackey had only ambiguous authority and little training. Still, he took charge and made in his final moments swift decisions that saved lives. His sacrifice is now instructing a new generation of fire leaders on how to make the right decisions when lives depend on them. **F**