ELY, MINN. — A series of internal reports show that the U.S. Forest Service repeatedly underestimated the explosiveness of the Pagami Creek Fire during a critical 18-day stretch of late August and early September, allowing a half-acre burn to grow into a massive firestorm that left eight people fighting for their lives inside the Boundary Waters Canoe Area Wilderness.

As a result, officials failed at several goals established in their own fire management memos early on, records show. When the fire’s signature phase erupted on Sept. 12, the blaze took off on a stunning 16-mile run that vaporized trees and turned into Minnesota’s biggest forest fire since 1918. On a lake left unpatrolled by the Forest Service, two campers fought for their lives while trapped in a downpour of red-hot embers, blinding smoke and superheated gasses.

"It’s good that no one got hurt in this fire, but they came very close," said Tim Ingalsby, executive director of Firefighters United for Safety, Ethics and Ecology in Oregon. While acknowledging that forest fires are inherently unpredictable, he said: "Now, it’s what happened? And why?"

Forest Service officials defend their management of the fire, saying they blocked it from invading a populated area known as the Fernberg Corridor nearby. But other prime objectives were not met, records show, such as keeping the fire inside the BWCA, eliminating the need for evacuations of private property and keeping all crew members and campers safe.

"We felt like we were being very proactive," said Mark Van Every, head of the Kawishiwi Ranger District in Ely, where the fire command is based. "It just happened faster and further than we expected."

In the future, he said, the Forest Service might order faster and wider evacuations. "I will make those closure areas broader if I feel there is any potential at all that the fire could get there," Van Every said. He said officials will also recalibrate the tools used to judge how fast a BWCA fire can move.

Meanwhile, two public reviews are underway. One is focused on an incident that endangered six crew members trapped by fire on Lake Insula. Two female crew members were forced to abandon their canoe while paddling in a lake channel that became choked by fire, Van Every said. Four others beached their canoes on an island and took cover under life-saving gear and later rescued their freezing crewmates from a nearby shore.

Slow start

The fire started with a lightning strike Aug. 18 in a spruce bog 14 miles east of Ely. The blaze could have been extinguished handily during the first week, but was allowed to burn under ecologically minded fire policies. Among other things, burned areas create fuel breaks to halt future fires.

The first official decision, published internally Aug. 20 in the Wildland Fire Decision Support System (WFDSS), was mainly to watch the fire.

The half-acre burn didn't budge much for seven days. The U.S. Drought Monitor, produced by the National Weather Service, showed the area to be in the first stage of drought, known as "abnormally dry." But Van Every and Tim Sexton, a forest ranger based in Cook, Minn., said other indicators didn't suggest rapid rates of spread. The fire's early behavior supported
that thesis, they said.

Then, on Aug. 26, with Sexton covering for a vacationing Van Every, the humidity level dipped abnormally to 18 percent and winds blew from the northwest. What had been a slow-creeping fire with flames 6 inches high in the morning picked up and ran in a narrow band to the southeast.

Now, with a 135-acre footprint of spotty fires, a "Type Two" fire management team from the Forest Service arrived quickly and recommended a pivotal plan. Instead of putting crews on the ground to contain the various spot fires, they would ignite a large area of woods just north of the blaze to create a buffer of burned fuels to prevent the wind from driving the fire northeast into the Fernberg.

Strategic burn

The Sept. 4 decision reflected firefighters' growing concern about dry forest conditions. "Weather forecasts indicate that September will experience dry, windy weather with occasional frosts (which will cause leaf fall and add to the hazardous fuel loading)," the WFDSS report said. In addition, drought conditions would worsen to the "severe" level by Sept. 6.

The rationale for the "burnout" included concern that conditions were too volatile to put crews on the ground. Even so, officials described only "moderate" risk in their WFDSS report. The Sept. 4 decision, like others before it, said: "Based on current models there is little potential for this fire to become larger than the historic average."

The burnout was conducted over Labor Day weekend, using 1,700 gallons of jellied gasoline dropped from helicopters. Now more than 2,000 acres were on fire, and the forecast for the week ahead called for "much drier" weather.

Still, fire managers were satisfied with their progress. They announced a partial withdrawal of firefighters on Sept. 8, even while acknowledging in the same memo that "pockets of unburned fuel can ignite rapidly." The plan was to continue suppression of any unwanted fire, but not contain the fire's southern edge.

Two days later, at 3 in the afternoon, Sexton was paddling a canoe on Lake Three. The fire appeared "pretty benign," he said. Two hours later, he looked back and saw a huge column of orange sweeping through the trees.

"That was the game-changer," Sexton said. Fire officials quickly decided on a strategy of full-perimeter containment that included 34 initial aerial drops of foam retardant seldom used in the BWCA.

Lake closures, trail closures and campsite evacuations took on more urgency. But it was too late: the fire multiplied three-fold the next day, once again to the southeast.

In a WFDSS decision published Sept. 11, after an intense day of firefighting and evacuations, the risk factor was changed from "moderate" to "high." With forecasts for the next day calling for wind gusts of up to 40 miles per hour and 80-degree temperatures, fire managers met in Van Every's office to strategize. A fire behavior specialist mapped out a large conceptual burn for the fire for the next day, and Van Every doubled it.

"We thought we had made a large margin of safety," Van Every said.

Once again they underestimated the fire.

Starting around noon Sept. 12, plumes of fire grew so immense that NASA captured images of the fire from outer space. The fire's energy caused thunder, lightning, hail and high winds, and five hours later the Pagami Creek fire ranged to nearly 150 square miles. It threatened, but did not burn, the town of Isabella.

A public safety crew on Lake Insula, using canoes, not motorboats, was now in danger. A float plane found an opening in the smoke and rescued two of the eight crew members, but the others had to fend for themselves.

"The fire behaved in a way that none of us expected," Van Every said.

The night before the big run, Van Every and Sexton said, fire managers considered but then balked at ordering an elite Type One fire management team into the firefight. A beefed-up Type Two team would do, they decided.
Ultimately, a Type One team arrived to fully contain the fire with bulldozers and more than 700 firefighters.

A fire management plan that was priced in late August at less than $1 million had evolved into a $22.3 million affair.

© 2011 Star Tribune