

Incident Summary Page for the 100 Fires Project

Incident Name: Cerro Grande Fire Escape from the Upper Frijoles Prescribed Fire	Incident Date & Time: 05/04/2000
Incident Location: Bandelier National Monument and Los Alamos, New Mexico	Incident Size: 43,000 acres
Types of resources involved: National Park Service wildland fire module, overhead personnel, and a Type 2 handcrew	# of Fatalities/injuries: Not applicable
Reason this fire was selected for the 100 Fires list: ➤ Fire made a notable impact within the wildland fire service	
Conditions leading up to the event:	
<p>Bandelier National Monument is 32,727 acres and ranges from 5,300 feet to 10,199 feet in elevation. It is in the southern portion of the Pajarito Plateau of the Jemez Mountains at the southern edge of the Rocky Mountains in north central New Mexico. The monument is bordered to the south, west, and northeast by the Santa Fe National Forest, to the north by the private lands of the Baca Ranch, and to the east by the Department of Energy Los Alamos National Laboratory. The communities of Los Alamos and White Rock are within five air miles to the east and southeast, respectively.</p>	
<p>The Bandelier National Monument fire management program prepared the prescribed burn plan for the Upper Frijoles Units 1 and 5. The units encompassed approximately 1,000 acres in the headwaters of Frijoles Creek above State Route 4 (labeled as "Paved Road" in the maps below) to the park boundary at Cerro Grande summit. The vegetation in the area consists mostly of mixed conifer and montaine grasslands at the higher elevations. Included in the 1,000 acres is approximately 32 acres of the Baca Ranch. The area within Unit 1 was burned in 1993. The 1993 burn was not successful, as much of the area within the burn unit was inherently moist and did not burn very well. For the 2000 burn, with the exceptions of the grasslands, dry conditions were needed to accomplish fire objectives.</p>	
<p>This prescribed burn was part of the 10-year schedule approved in the fire management plan for Bandelier National Monument. The prescribed burn was scheduled for a three phased treatment. Phase 1 consisted of burning grasslands in the upper part of the units, Phase 2 was the forested area on both the east and west side of the drainage, and Phase 3 was the central wetter area.</p>	
Brief description of the event:	
<p>At about 19:20 on May 4, 2000 a test burn on an unlined unit was conducted near the top of Cerro Grande on national monument lands. After ignition, the plan was to extinguish the exterior edge using backpack pumps or swatting the edge with branches. The lower interior edge was allowed to burn approximately 130 feet (2 chains) before being stopped with the same technique. This created a "blackline" about 400 feet long by 130 wide. This test fire confirmed the fire would spread and could be contained with a blackline.</p>	
<p>Next, the blackline operation continued southeast downhill along the ridge. After several hundred feet it was determined that extinguishing the interior fire edge was requiring more time and effort than expected. Extinguishing the interior edge was halted allowing the interior burn to run free up hill and to the east. As the blackline neared heavier fuels, which had handline, burning was halted. Two personnel were left at the end of the burning to hold and the rest of the crew went back to the top of the unit to pick up a slop-over.</p>	
<p>The interior burn from the eastern line was burning west and threatening the unlined western perimeter. Blacklining started downhill on the west line to the south at 23:00. The grasses were ignited and only the exterior edges were extinguished, this interior fire spread towards the eastern burn. A combination of terrain, fuels, fire behavior and staffing issues raised concerns as to whether the unit could be held with the resources onsite.</p>	
<p>At 03:17 on May 5, additional resources were requested by the Burn Boss to be available for a day shift. The Santa Fe Zone Dispatch reported they could not order resources for a prescribed burn without approval and the Burn Boss was told to check back in the morning. At about 06:00 personnel back at the Park Headquarters reviewed the resource orders and discussed the funding of extra resources available for this project. The consensus was a limitation existed on available funds for this project. It was agreed one load of fire retardant, a 20 person crew and helicopter could be funded. These were ordered about 07:00. The investigation later determined there was no funding limitation for this prescribed burn. This misunderstanding is critical to events leading up to the escape.</p>	
<p>At 07:00 blackline firing on the east flank was started back up to keep pace with the interior fire burning downhill. Around 10:30 there was a spot fire reported, burning was halted while the four firefighters on the east flank engaged the spot fire. They were unable contain it and requested help. At 12:30 a Type 1 crew arrived on the fire and 13 firefighters were sent to the spot fire and began building line. A second spot fire was then reported by Air Attack. Both spots proved difficult to control and retardant was ordered. After the</p>	

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retardant drops, the lead plane pilot ordered these aircraft to return to Albuquerque to standby. The first spot was contained at about 20 to 30 acres. The second spot fire, located on national forest lands, was contained at about one acre.

On May 6, based the fire situation and concerns regarding funding limitations, the prescribed burn was declared a wildfire. Since the incident was now a wildfire, immediate action was taken to suppress the fire. The suppression operations centered on using the existing prescribed burn lines and firing the east and west lines to State Route 4. At 09:00 on May 6, the fire was estimated to be 490 acres in size with both flanks being fired towards State Route 4 and then firing State Route 4 from the east to west.

About 10:00 on May 7, a helicopter attempted to widen out the fireline along the west line. At about 12:00 fire activity picked up dramatically as strong winds of up to 50 mph were reported at Los Alamos National Laboratory. The fire spread rapidly west to east paralleling State Route 4. A spot fire in the upper end of Frijoles Canyon below State Route 4 was reported but crews were unable to attack it due to extreme fire intensity. This spot fire caused more spot fires above State Route 4 which grew into a crown fire and spread rapidly to the east. The original spot below State Route 4 in Frijoles Canyon was contained around 17:00 on May 7.

On May 8, a Type 1 Incident Management Team took over the fire at 06:00. A major firing operation was initiated using State Route 4, the Camp May Road, and Highway 501 to begin securing the fire advance.

The fire burned aggressively towards the National Laboratory and the town of Los Alamos. At its peak on May 10, the Cerro Grande Fire was a running crown fire that burned into the town of Los Alamos and threatened neighboring White Rock. There were 235 homes destroyed, 40 National Laboratory buildings burned, and approximately 18,000 residents were evacuated. The fire burned for more than a month and was declared controlled on June 10.

Fire behavior factors that were present during the event:

The need for the fuels to be in a drier than normal state for the prescribed burn to be considered successful led to the fire transitioning quickly to a level where the available resources were inadequate.

The fire from the very outset was exhibiting greater than expected resistance to control. This required the limited resources assigned to be deployed on the fires perimeter for containment and holding actions, which caused the planned blackline operations on the interior to be halted. With no interior blackline containment, the entire unit was open for uncontrolled spread which then outpaced the limited resources onsite.

Operational lessons available for learning from this incident:

The need to consider both the resource requirements for conducting planned prescribed burn operations as well as the resource availability for escaped fire contingency plans.

Approved prescribed burn plans, where implementation has been delayed for several years, may require a review of fuel loading and the fire behavior calculations.

Required holding forces should be based on fuel conditions outside of the burn unit as well as within the unit; spatial modeling tools may be useful.

Pressure from management to complete a burn in a rush or without adequate resources is a watch-out situation.

Test fire location and fuels should be representative of the prescribed burn unit.

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

Upper Frijoles Prescribed Burn escape led to a complete review and restructuring of the Department of Interiors prescribed fire program. Every aspect of the prescribed fire program for the Department of Interior as it exists today has its roots in this fire.

Links to more information on this incident:

<https://www.nwcg.gov/wfldp/toolbox/staff-ride/library/cerro-grande-fire>
<https://lessons.wildfire.gov/incident/cerro-grande-escaped-prescribed-fire-2000>

Video:

➤ <https://www.youtube.com/watch?v=kRJTNpq4mQA>

This summary page was proudly provided by:
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Figure 5A
(1) Thursday, May 4, 2000
Test Fire Ignited
1920 Hours

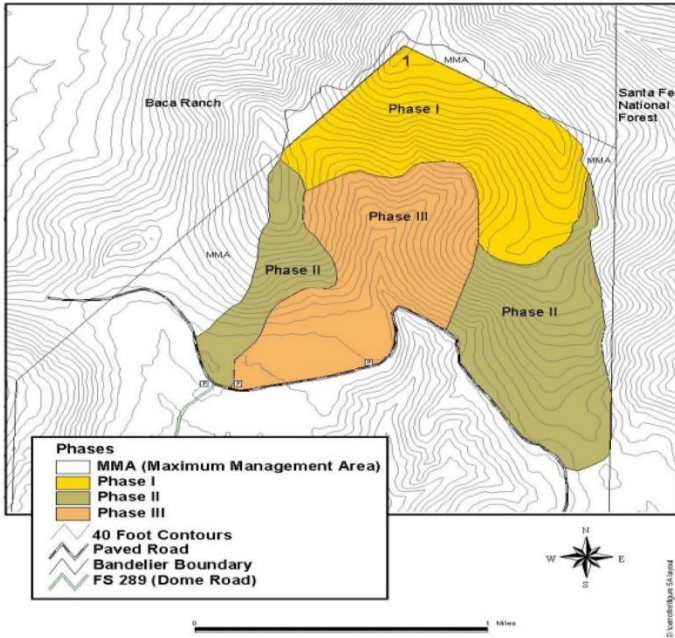


Figure 5B
(2) Thursday, May 4, 2000
Double-black Line Established
Approximately 2100 Hours

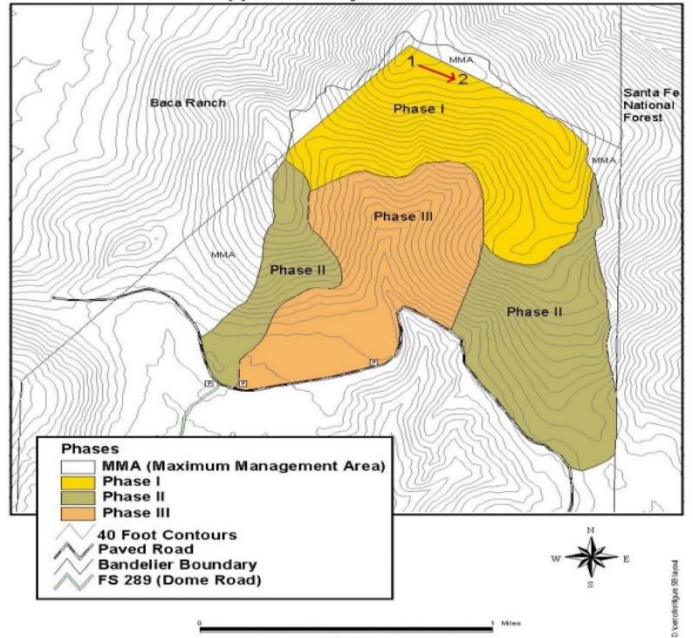


Figure 5C
(3) Thursday, May 4, 2000
Firing Secured on East Edge
2200 Hours

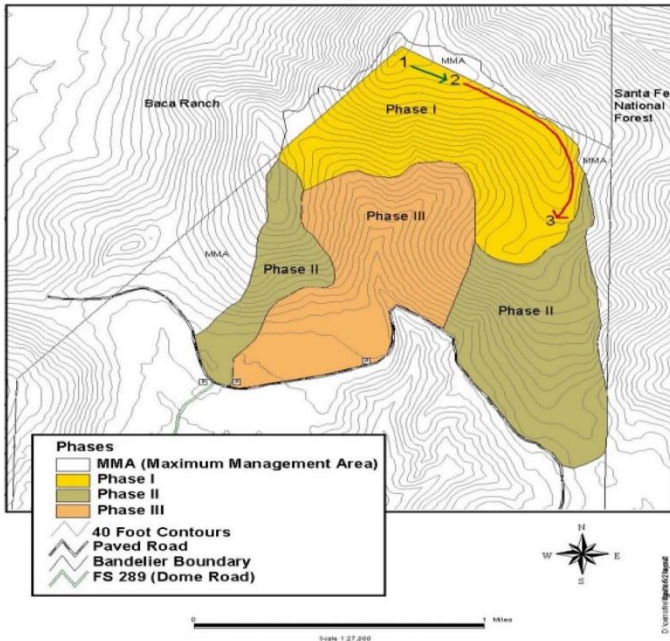
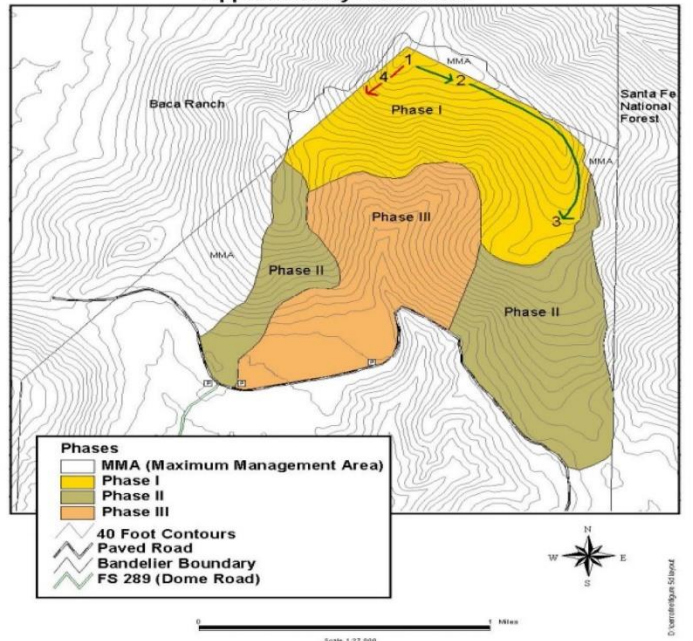


Figure 5D
(4) Thursday, May 4, 2000
Firing Begins on West Flank
Approximately 2315 Hours



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Figure 5E
(5) Friday, May 5, 2000
Firing Secured on West Flank
0200 Hours

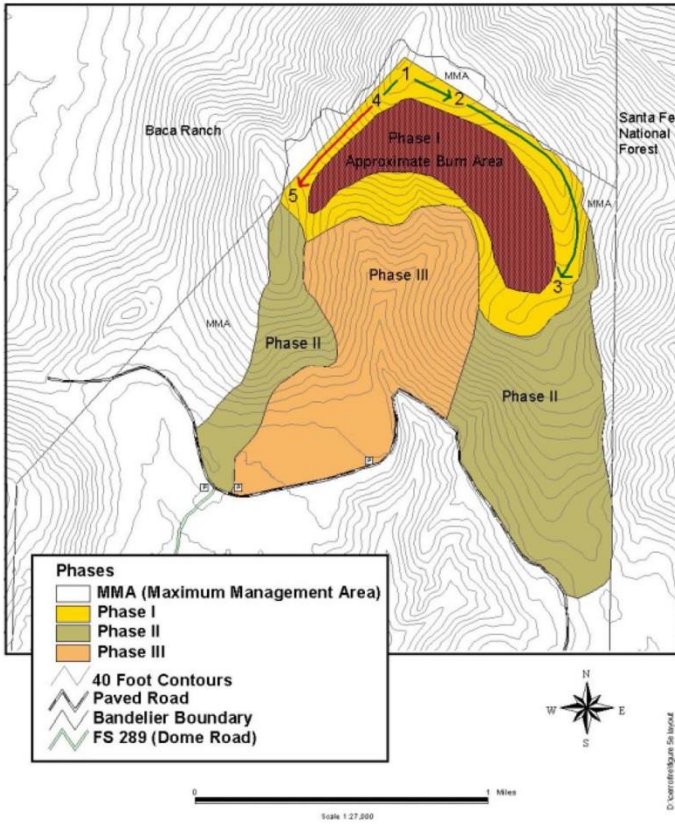


Figure 5F
(6) Friday, May 5, 2000
Sloper and Retardant Drop
Project Converted to Wildland Fire
1300 Hours

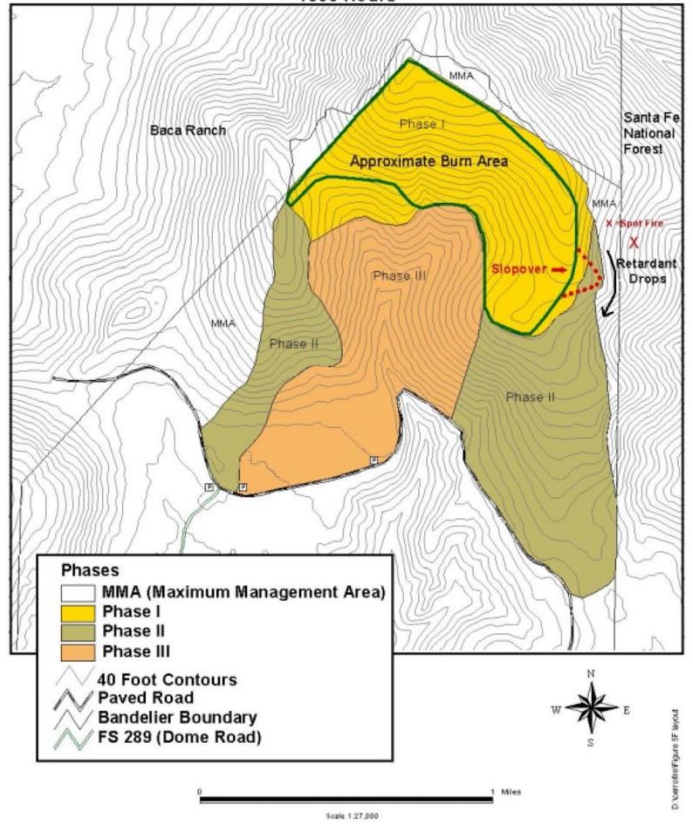


Figure 5G
(7) Saturday, May 6, 2000
Wildland Fire Situation
Approximately 1800 Hours

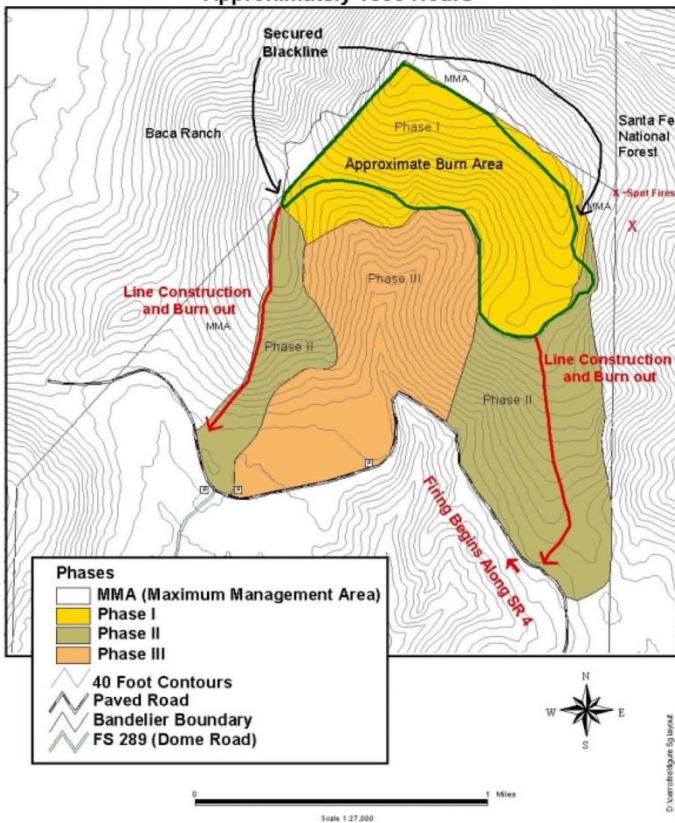


Figure 5H
(8) Sunday, May 7, 2000
Spot Fires into Frijoles Canyon
Approximately 1200 Hours

