United States
Department of
Agriculture

Forest Service

5100 Fire
December 2003
0351-2M49-MTDC

Management Evaluation Report

Cramer Fire Fatalities
North Fork Ranger District
Salmon-Challis National Forest
Region 4

Salmon, ID, July 22, 2003

United States Department of Agriculture
Forest Service

THIS DOCUMENT CONTAINS MATERIALS FOR INTERNAL AGENCY USE ONLY AND MAY NOT BE RELEASED UNDER THE FREEDOM OF INFORMATION ACT WITHOUT OFFICE OF GENERAL COUNSEL REVIEW.

Management Evaluation Report

Cramer Fire Fatalities
North Fork Ranger District
Salmon-Challis National Forest
Region 4
Salmon, ID

July 22, 2003

Management Evaluation Report

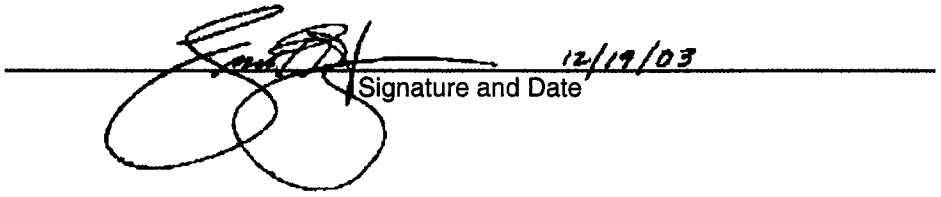
Accident: Cramer Fire Fatalities

Location: North Fork Ranger District, Salmon-Challis National Forest

Date: July 22, 2003

Investigation Team Leader

Linda Donoghue, Station Director, North Central Research Station, St. Paul, MN



Investigation Chief Investigator

George Jackson, Program Leader, Missoula Technology & Development Center, Missoula, MT

Investigation Team Members

Ron Angel, Forestry Tech (Fire)/Union President Local 1402, NFFE, Sandpoint, ID
Grant Beebe, Base Manager, BLM, National Interagency Fire Center, Boise, ID
Kevin Bishop, Special Agent, USDA Forest Service, Region 8, Columbia, SC
Kelly Close, Firefighter, Poudre Fire Authority, Fort Collins, CO
Randy Moore, Regional Forester, Region 9, Milwaukee, WI
Erin Newman, Executive Assistant, USDA Forest Service, Washington, DC
Marcus Schmidt, Smoke Management Specialist, Colorado State Office, BLM, Lakewood, CO
Chuck Whitlock, Safety/Health Specialist, Missoula Technology & Development Center, Missoula, MT

Investigation Technical Consultants

Leslie Anderson, Equipment Specialist, Missoula Technology & Development Center, Missoula, MT
Cheryl Chatham, Public Affairs Team Leader, USDA Forest Service, Region 8, Hot Springs, AR
Jim Kautz, Audio/Visual Production Specialist, Missoula Technology & Development Center, Missoula, MT
Tony Petrilli, Equipment Specialist, Missoula Technology & Development Center, Missoula, MT
Jim Prange, National Weather Service, Seattle, WA

Management Evaluation Report

Cramer Fire Fatalities
North Fork Ranger District
Salmon-Challis National Forest
Region 4

Salmon, ID, July 22, 2003

USDA Forest Service
Technology and Development Program
Missoula, MT

December 2003

The Forest Service, United States Department of Agriculture (USDA), has developed this information for the guidance of its employees, its contractors, and its cooperating Federal and State agencies, and is not responsible for the interpretation or use of this information by anyone except its own employees. The use of trade, firm, or corporation names in this document is for the information and convenience of the reader, and does not constitute an endorsement by the Department of any product or service to the exclusion of others that may be suitable.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Contents

Synopsis of the Cramer Fire Accident Investigation

The Salmon-Challis National Forest (SCNF) in the Intermountain Region (R-4) is located in central Idaho. Rugged, steep terrain on the northern part of the forest has a significant impact on fire behavior, fuels, and local weather. On south-southwest aspects, fuels range from scattered shrubs, grass, and forbs on lower slopes to grass, shrubs and open ponderosa pine stands at higher elevations. On west-northwest aspects, mixed age Douglas-fir are prevalent. Live fuel moisture on the forest was at critically low levels at the time of the Cramer Fire; the *Burning Index* (BI) and *Energy Release Component* (ERC) indicated dangerous conditions.

The SCNF, a high-fire-load forest, has a fire organization, typical for the region, and delegates decisionmaking and fire management on all but Type I fires to the ranger districts (RDs). The fire organization was experiencing some tensions and problems as well as funding and staffing shortages, but the supervisor's office (SO) and regional office (RO) thought it worked well overall. The SCNF has a rigorous system of training and qualifications for its fire management personnel and stressed the importance of firefighter and public safety as the highest priority in fire suppression activities.

From July 12–22, the SCNF had several ongoing Type II fires as well as the Type III Cramer Fire. Because the forest fire staff, the ; and the were fully engaged with large fire management and fire-related business, there was little management oversight or direction to the Cramer Fire incident commander (IC).

The Cramer Fire became an extended attack fire at approximately 1938 on Sunday, July 20. This should have triggered a need for a complexity analysis and a wildland fire situation analysis (WFSA). No complexity analysis or WFSA was prepared on July 20, 21, or 22.

July 19 and 20, 2003

The Cramer Fire, located on the North Fork RD, started on July 19, 2003 from a lightning strike. It was detected by Long Tom Lookout at 1630 on July 20. At 1648, a McCall, ID, smokejumper aircraft (jumper 41) was diverted from another fire on the SCNF to do initial attack on the Cramer Fire but was unable to put smokejumpers on the fire because of high winds. Jumper 41 estimated the fire at 3 acres, burning in light fuels on a 60- to 70-percent slope, with a high spread potential.

Later in the evening on July 20, an and five members of an engine crew were flown into the fire by helicopter H-166. The engine crew was not used because the central Idaho dispatch center wanted the crew available for initial attack the next day. Because of dangerous conditions and darkness, no suppression action was taken on July 20 other than to assess and monitor the fire.

July 21, 2003

The Cramer Fire was actively burning through the early morning hours of July 21 and was 35 to 45 acres at 0710. At 1058, the . During a recon of the fire, the noted that the perimeter was calm except for the northeast corner. By late morning, aviation and crew resources began to arrive at the Cove Creek helibase approximately 13 miles up river from the Cramer Fire. A Type II initial attack crew was flown from the helibase to a helispot (H-1) at the base of the fire to begin suppression action on the east flank, and a Type I helicopter was launched to do bucket work. Late in the afternoon after returning from an off-forest assignment, a second helicopter H-193 from the North Fork RD Indianola helitack base arrived on the fire with its crew and was asked to do bucket work above H-1.

At 1613 on July 21, fire behavior on the Cramer Fire increased, pushing the fire east into the Cramer Creek drainage. The hand crew pulled back to H-1 to hold the line they built above H-1, but the winds blew the fire across their hand line. At 1735, the suppression due to increased fire behavior. The majority of the hand crew walked off the fire to the Salmon River road while the remainder, including the flew back to the Cove Creek helibase. Later that evening, Cramer air attack reported that the fire had grown to 200 acres.

During a conversation later in the evening on July 21 with dispatch, two Type II medium helicopters and logistics and operations support to accomplish his objective of catching the fire at 300 acres on July 22. He was told that Type II helicopters were ordered but unavailable and to use a strike team leader the following day to supervise the hand crews. The logistics support position was filled early on July 22.

July 22, 2003

At 0820 on July 22, the the fire with a The strategy for the day was to fly three crews into H-1, use two crews to secure the east flank and one crew to anchor the fire to the west, and put two rappellers above the fire to build a helispot (H-2). H-2 would be used to fly a fourth crew in to secure the west flank of the fire. At 0900, the Type I helicopter was launched from Indianola to do bucket work on the fire.

At 0943, two Indianola helitack personnel rappelled from H-193 into a site above the fire to build H-2. The rappel spotter in H-193 estimated it would take one hour to clear H-2. During the morning and afternoon, Cove Creek helibase contacted the rappellers on H-2 several times, inquiring about their progress. The

rappellers responded each time that they needed another 15 minutes to 1 hour before the helispot was completed.

While Cramer was over the fire, he contacted the and recommended using retardant to pretreat the ridge above Cramer Creek and H-2. The confirmed the plan with Cramer

The crew shuttle from the Cove Creek helibase to H-1 began at 1047. H-166 and H-193 took more than 3½ hours to shuttle 60 people—three per helicopter per 15-minute round trip.

arrived over the Cramer Fire at 1245 while two airtankers were dropping retardant. Shortly after arriving on the fire, assumed the duties of had returned to Salmon for refueling. noticed small spot fires in the Cache Bar drainage.

During a recon at 1326, the noted that most of the fire activity was below H-1 but the fire was also active on the east flank. The decided not to put the fourth crew into H-2 because they would have to walk in dangerous terrain at night. At 1400, fire activity increased and was intense around H-1, eventually burning over the helispot. At 1423, the contacted the with concerns about the fire making a run to the west.

Between 1430 and 1440, the fire that had been smoldering in the Cache Bar drainage turned into an active flaming front. Between 1500 and 1520, observed spread rates and intensities that were much greater than he expected and thought that the personnel on H-2 would not be at great risk due to the light fuels and rocky areas in the Cache Bar drainage.

At 1500, H-193 was down for a 30-hour maintenance inspection and H-166 was down for refueling. At 1505, the rappellers on H-2 requested a pick up and said, "Send them in a hurry." At 1509, the rappellers again called the helibase requesting the status of their pickup and said, "We need them right now." At approximately 1510, the Cove Creek helibase radio operator asked the rappellers on H-2 if they were in danger and if they needed to go to their safety zone. The rappellers responded no, it was getting real smoky and they needed a ride out. At 1511 the assembled his three crews, and after 1530, began walking the crews off the fire to the Salmon River road. At 1512, the Cove Creek helibase called the rappellers on H-2. When the rappellers responded at 1513, helibase said that the helicopter would be taking off momentarily and asked if there were any problems. The rappellers on H-2 responded, "Oh, God. We just got fire down below us. The smoke's coming right at us. Just make them hurry up."

During this time, the was involved in multiple radio conversations with central Idaho dispatch in Salmon, ID, about using resources assigned to the Cramer Fire for initial attack on the Stoddard Fire, a new start close by. H-166 was later diverted from the Cramer Fire to the Stoddard Fire for initial attack.

At 1520, H-166 said it was coming to get the rappellers at H-2 but couldn't land because of the smoke. heard the rappellers on H-2 respond to H-166 in a calm voice that the winds were 20 to 25 knots and that they were leaving H-2. At 1524, the rappellers called and asked, "Could I get a helicopter up right now?" observed that when the fire in the Cache Bar drainage reached the ridge, some flame lengths were 50 feet or more with occasional flame lengths up to 100 feet. The fire, described as "a big flash front," burned over and around H-2, killing the rappellers shortly after their last radio transmission. Estimated temperatures at the fatality site were from 1,300 °F to potentially over 2,000 °F. Two fire shelters were found at the site, but neither was deployed.

Numerous attempts were made to locate the rappellers after the burnover. Two personnel were rappelled below H-2 later in the afternoon for a search-and-rescue mission. Shortly after reaching the ground, the search-and-rescue personnel were notified by a helicopter over the area that it had located the rappellers approximately 75 to 100 yards northwest of H-2. The search-and-rescue personnel flagged and secured the fatalities site. Later on, two more personnel were delivered close to H-2 and the four spent the night near H-2.

At 1008 on July 23, the Lemhi County sheriff, the Lemhi County deputy sheriff, and a Forest Service employee flew into a helispot above H-2 to remove the bodies. The victims were flown to the Cove Creek helibase and then on to the Salmon airport. The accident investigation team arrived in Salmon at 1800.

Findings

Forty-four major findings, conclusions developed from the facts of the incident, were divided into sixteen categories below. Some of the more significant findings are highlighted and summarized within each category.

Fire Management Plan Direction

The SCNF Fire Management Plan identifies two trigger points that define when a fire transitions from initial attack to extended attack and what analyses are needed once a fire reaches extended attack status. It also addresses the hazards of fire suppression in the Salmon River Breaks and recognizes that fire line construction at midslope is dangerous and that underslung fire lines are hard to secure and hold. Midslope fire suppression tactics were used on the Cramer Fire during extreme burning conditions.

Fire Management Organization

Responsibility for managing Type II through Type V fires was assigned to the district rangers on the SCNF, which

placed a considerable fire management workload on the North Fork/Middle Fork district ranger. There was a critical fire management vacancy (the FMO) on the North Fork RD, and there were no initial attack resources from the North Fork RD on duty or available when the fire was reported, lengthening the response time.

The SCNF increased the number of positions in its fire organization when it received additional fire funding, but there were different perceptions on the forest of how well the fire organization functioned. The performance of the fire organization was becoming a source of increasing concern, but limited action was taken to address the state of the fire organization.

Qualifications

Personnel assigned to the Cramer Fire were qualified for their positions.

Transition from Initial Attack to Extended Attack

When the Cramer Fire went into extended attack status, the change from initial attack to extended attack was not acknowledged, recognized, or reported by the

. As a consequence, the analyses required by the FMP were not conducted and there was no communication regarding the change in fire status.

Fire Suppression Strategy and Tactics

There was minimal discussion of Cramer Fire suppression strategy and tactics among

On July 21 and 22, fire suppression strategy and tactics on the Cramer Fire did not provide for safe and effective suppression operations. The

were not available.

Safety

There was good attention to safety at the forest level and in the early stages of the Cramer Fire, however, there were significant safety lapses on the Cramer Fire prior to the fatalities. Visibility of the slopes below H-2 was limited by topography and vegetation, obscuring the rappellers' view of fire below them.

Fire Management Resources

There were inadequate resources and a logistical inability to fully utilize available resources to implement the

On July 22 there was confusion about the availability and positioning of some resources and helicopters were not available to retrieve the rappellers at a critical moment of need.

Weather Information

Fire activity on the SCNF increased in July due to hot, dry, weather and multiple lightning starts, indicating the potential for new starts to grow rapidly. Crews were informed on the morning of July 22 that conditions had been progressively warmer and drier the previous two days. Weather information was not aggressively sought and the information that was obtained did not represent the Cramer Fire site.

Fuels and Terrain

Fuel and terrain conditions on the Cramer Fire lent themselves to extreme fire behavior and difficult fire suppression.

Fire Behavior, General

Fire behavior on the Cramer Fire was consistent each day—calm in the morning and severe in the afternoon. Even though the Salmon River Breaks are known for their potential extreme fire behavior and some crew members were aware that seasonal conditions were extreme, other personnel on the fire did not expect extreme fire behavior in the afternoon of July 22.

Lookouts

There were no effective lookouts for the rappellers at H-2. The plan for placement of lookouts was not clearly communicated to personnel assigned to the fire. No lookout with a view of H-2 or the Cache Bar drainage was posted on July 22 to monitor fire in the Cache Bar drainage and to communicate critical weather and fire behavior information to the rappellers. Aviation resources over the fire could not function full time as lookouts for ground crews given their other duties and responsibilities.

Escape Routes and Safety Zones

Three of the four safety zones identified by the IC and two crew bosses were not safety zones on the afternoon of July 22, during conditions of extreme fire behavior. Helicopter retrieval became the primary escape route to safety for the rappellers.

Fire Behavior, Cache Bar Drainage

The seriousness of the fire in the Cache Bar drainage was underestimated. Development of an active fire front was observed from the air as much as 50 minutes before the fire reached H-2, but this information was not conveyed to the rappellers on H-2. When the fire front reached H-2, the intensity and rate of spread were much greater than had been anticipated, and conditions were not survivable with or without a fire shelter.

Postaccident Response

Multiple attempts were made to contact and locate the rappellers. More than 30 minutes after loosing contact with the rappellers, the ' became involved in the search and rescue operation. Prior to that time, ' , on the safety of personnel near H-1 and dispatching Cramer Fire resources to another fire on the forest.

Leadership on the Cramer Fire

Leadership on the Cramer Fire was inadequate to provide for safe and effective suppression operations.

He remained confident he could contain the fire with the same strategy even though he did not receive the requested resources, and his view of the fire on July 22 came from two reconnaissance flights. The rest of the day he was at the Cove Creek helibase, 13 miles from the Cramer Fire. When the IC made his decision to retrieve the rappellers from H-2, ½ hour elapsed before a helicopter was launched to get them, and that launch was requested by the rappellers. During the critical period prior to and after contact was lost with the rappellers, the

Management Oversight

The SCNF assigned responsibility for the Cramer Fire to the :

. Those who should have provided oversight focused attention on other priorities. When concerns about management of the fire surfaced, follow-up on these concerns was inadequate.

Causal Factors

Nine causal factors, developed from the findings, are listed below. They are acts, omissions, conditions, or circumstances that started or sustained the accident on the Cramer Fire.

1. Management oversight was inadequate.
2. The !
3. The
   issues other than the Cramer Fire.
4. There was a failure to comply with policy.
5. There was a failure to recognize and adjust suppression strategy and tactics when initial fire suppression efforts failed.
6. There was a failure to accurately assess the fire situation, hazards, and risks on the Cramer Fire.
7. There was inadequate integration of the H-2 operation into the Cramer Fire operation.
8. There was a delay in formulating and executing a plan to retrieve the rappellers from H-2.
9. The rappellers were caught in a burnover.

Contributing Factors

Three contributing factors, developed from the findings, are listed below. These are factors that set the stage for the accident.

1. The effectiveness of the SCNF fire management organization was impaired.
2. There was a shortage and misallocation of resources.
3. Initial attack was ineffective.

Causal Factors

A causal factor, developed from the findings, is defined as an act, omission, condition, or circumstance that either starts or sustains an accident sequence. A given act, omission, condition, or circumstance is a causal factor if correcting, eliminating, or avoiding it would prevent the accident or mitigate damage or injury.

1. Management oversight was inadequate.

From July 20–22, 2003, line officers and forest fire staff did not provide adequate management oversight and direction to the Cramer Fire incident commanders (ICs). Consequently, no effective communication, discussion, or validation of the and tactics were accomplished. Even when concerns about management of the fire were raised, forest fire staff and line officers failed to recognize that additional fire management resources were necessary (findings: 9, 13b, 13h, 16f, 18, and 44).

- The ')) raised concerns about the management of the fire to the , who passed on the concern to the 'finding: 44f).
- Once informed of the concern, the did not follow up assertively to assess the suppression situation to determine whether or not problems existed (finding: 44f).
- There was a failure to fully respond to the request for additional operational and logistical support and to evaluate and react to the information the forest fire staff received from the findings: 13h, 16f, and 18g).
- The were occupied with other priorities, both fire and nonfire (findings: 44a, 44b, 44c, 44d, and 44e).

2. The suppression operations.

- to contain the fire on July 22, even though fire behavior had exceeded suppression capabilities and containment efforts the previous day (findings: 13c, 13h, 13j, and 38b).
- behavior potential and steep, rocky terrain, with a shortage of resources (findings: 13, 22, 25, 26, 27, and 28).
- (finding: 29).
- zones (finding: 30).
- most of the day on July 22, affecting ; (findings: 16h, 16i, 29, 38c, and 38e).
- and adequately contact, monitor, or coordinate with the H-2 operation (findings: 13i, 13k, 18i, 18j, 29, and 38c).
- Despite signs that some of afternoon (findings: 13i, 13j, 16i, 18j, 35a, 37, 38d, and 38e).
- rappellers, hand crews, and a member of the Moyer helitack crew at risk during the afternoon of July 22 (findings: 13k, 16h, 16i, 17, 29, 35, and 38d).

(H-2). The rappellers continued to execute the original plan, which delayed their departure from the site (findings: 13i, 13k, and 31).

3. The to issues other than the Cramer Fire.

diluting his attention to Cramer Fire management on July 22 (findings: 38c and 38e).

4. There was a failure to comply with policy.

Selected personnel involved with the fire did not comply with policies and procedures in the fire management plan and with agency fire management directives (appendix e) that provided direction to:

- Prepare a complexity analysis (findings: 1a, 8, and 9).
- Prepare a wildland fire situation analysis ((findings: 1a, 8, and 9).
- Use safety officers on Salmon-Challis National Forest (SCNF)) (findings: 16f and 38a).
- Make adjustments in midslope tactics based on fire suppression hazards) (findings: 1b, 13c, 13d, 13e, 13i, 25, and 26).
- Understand and know how to implement the Ten Standard Firefighting Orders (appendix e; findings: 13a, 13g, 16, 17, 18j, 21, 29, 30, 35a, 35c, 38c, and 38e).
- Recognize and mitigate the 18 Watch Out Situations (appendix e; findings: 13d, 13i, 16, 17, 21b, 21c, 22, 25, 26a, 26d, 29, and 35).[1]

[1] *It is not known, nor will it ever be known for certain from the investigation, the degree to which the rappellers failed to comply with policy—especially the Ten Standard Firefighting Orders and the 18 Watch Out Situations.*

5. There was a failure to recognize and adjust suppression strategy and tactics when initial fire suppression efforts failed.

After initial attack efforts did not contain the fire,

which to base a successful suppression strategy. They also failed to continually reevaluate the situation and modify the plan as fire conditions changed and as requested resources were not available.

- A complexity analysis and a wildland fire situation analysis were not prepared for the Cramer Fire (findings: 1a, 8, 9, and 18b).
- A key management position on the fire—a safety officer—was not filled (findings: 16f and 38a).
- Operational plans were an extension of the initial-attack response with no trigger points to reevaluate strategy. There were also no clearly articulated suppression objectives and no effective contingency plans (findings: 1a, 8, 9, 12, and 13).
- Suppression strategies were not adjusted based on the nature and availability of the resources (findings: 13d, 13e, 13h, and 13j).

6. There was a failure to accurately assess the fire situation, hazards, and risks on the Cramer Fire.

Cramer Fire personnel failed to recognize and/or address the severity of the fire conditions, which impeded their ability to make timely decisions and take appropriate actions on July 22.

- Fire personnel were unaware of the severe fire behavior potential of the ceanothus brush field, as indicated by its designation as a safety zone for the rappellers, and they failed to recognize the potential of the fire in the lower Cache Bar drainage on July 22 (findings: 26d, 30, 35e, and 35f).
- Of the four preidentified safety zones, the black near H-1 was the only appropriate safety zone (findings: 30, 35b, 35e, and 35f).
- There was inadequate change in oversight, strategy, or tactics on the Cramer Fire in response to the extreme fire danger and changing fire conditions (findings: 12, 13, 25, 28, and 44).
- There were inadequate briefings and alerts to acknowledge extreme fire danger and fire behavior potential in the Cramer Fire area (findings: 16g, 25, 26, and 27).
- Adequate safety mitigation measures were absent in the tactical plan. The integrity of H-2 was dependent on keeping fire below H-2 and out of the Cache Bar drainage. This was not established as an incident objective (findings: 13, 16f, 16g, 29, and 38a).
- No action was taken on the fire below the west ridge in the Cache Bar drainage (findings: 35a and 35c).
- Though they were asked if they needed to go to a safety zone shortly before the burnover, the rappellers did not seek a safety zone, because they were told a helicopter was coming. They were not directed to safety zones as warning signs increased (findings: 31, 32, and 35c).
- Fire behavior in the Cramer Creek drainage and the eventual burnover of H-1 focused the attention of fire personnel and distracted their focus away from H-2 (findings: 13j, 16i, 29, 35a, 35c, 38d, and 43).
- H-2 was perceived as a safe place even though visibility was limited and conditions changed (findings: 13g, 17, and 35).

7. There was inadequate integration of the H-2 operation into the Cramer Fire operation.

The rappellers, after being dropped at H-2, were largely disconnected from ongoing operations and were busy accomplishing a single task. Communications with them were inadequate.

- The rappellers did not have adequate supervision to provide for their safety, and there was confusion as to who their supervisor was (findings: 38 and 42).
- There was no agreed upon course of action to mitigate the changing and dangerous situation for the H-2 operation until it was too late (findings: 13b, 13g, 13h, 13i, 29, 31, 32, 33, and 35).
- The rappellers' obscured view of the fire below them, the focus on their task of clearing a helispot, and lack of awareness about changing fire activity resulted in insufficient information upon which to make appropriate decisions and caused them to act as if they were in a secure position (findings: 13e, 13i, 13j, 13k, 17, 27g, 31, 32, 35a, and 35c).

8. There was a delay in formulating and executing a plan to retrieve the rappellers from H-2.

- The retrieve personnel from H-2 was not effectively communicated or implemented until the personnel on H-2 requested helicopter retrieval (findings: 13i and 31).
- A helicopter retrieving a firefighter east of H-1 could have removed personnel from H-2 during the same flight (findings: 16h and 38d).
- Because helicopters were unavailable, they could not retrieve the rappellers at a critical point in time (findings: 18j, 29c, 31, 32, and 33).
- A helicopter was not launched the first and second time it was requested, but the rappellers were told that a helicopter was on its way (facts: 189, 190, and 195).
- assumed that the rappellers had been retrieved from H-2 (finding: 18i).

9. The rappellers were caught in a burnover.

The rappellers were overrun by fire outside of the two previously identified "safety" zones for H-2 and died without deploying their fire shelters. Conditions at the fatality site were not survivable in a fire shelter. One of the designated "safety" zones for H-2 may have been survivable in fire shelters (findings: 30, 33, 34, and 35f).

Contributing Factors

A contributing factor, developed from the findings, is defined as a factor that sets the stage for an accident or incident or increases the severity of injuries or extent of property damage.

1. The effectiveness of the SCNF fire management organization was impaired.

Ineffective implementation of reallocated authority and responsibility for Type II fires, in combination with vacancies in key fire management positions, impaired communication and hampered decision-making, reducing organizational effectiveness. This contributed to a lack of management oversight, a failure to comply with policy, and a failure to provide guidance to the Cramer Fire . (findings: 2, 3, 4, 6, 8, 9, 12, 13a, 13b, 16f, 18e, 18g, 38e, 39, and 44).

2. There was a shortage and misallocation of resources.

- The forest presuppression, suppression, and administrative workload exceeded the resources available, creating a shortage of management and suppression resources. More resources could have been sought by requesting additional severity funding and temporary details by off-forest personnel, but they were not (findings: 2b, 2c, 2d, 6, and 44d).
- Given the ongoing fire activity and known hazards in the Salmon River Breaks, better trained and experienced Type I crews, which were available, were not ordered for the Cramer Fire (findings: 1b, 18g, 22, 25, 26, and 44f).
- Type II fires on the forest received higher priority, more attention, and greater management oversight from the Cramer Fire. This contributed to unsafe and ineffective suppression efforts on the Cramer Fire (findings: 2d, 9, 13a, 13b, 13h, 13j, 16f, 18c, 18e, 18g, and 44).

3. Initial attack was ineffective.

Initial attack suppression efforts on the Cramer Fire were inadequate on July 20 and 21, causing the fire to grow in size and complexity under extreme burning conditions. Initial attack was delayed, district fire suppression resources were unavailable, crews were diverted or lost and unable to work the fire, and a helicopter was not used when it was available (findings: 2d, 13a, 13c, 18c, 18e, 18f, 19, and 27a–d).

Addendum

Issues surfaced during the course of the investigation that are not directly related to the cause of the accident but may require attention to improve fire management and firefighter safety on the SCNF.

1. Given the potential rate of spread in ceanothus as its growing season progresses from late June to early September, the SCNF should include predominant brush species on the forest in routine live fuel moisture samplings and communicate fuel moisture conditions and ramifications to forest and district fire management staffs.

2. Because fire personnel on the forest believe that spot weather forecasts from the National Weather Service Pocatello Office are inaccurate and unreliable, they tend to rely on the general fire weather forecast and the previous days' weather and fire behavior for their information on the fire line. The SCNF fire staff should periodically evaluate the level and quality of service they receive from the Pocatello office and work more closely with that office to ensure that the annual, fire-weather operating plan is complete, current, and adequate for the forest's needs.

3. Fire line supervisors need to reinforce the importance of taking frequent fire weather observations on the line, determine if other fire weather sources such as Long Tom Lookout are appropriate, accurate, and needed, and interpret and use the information to make real-time fire operations decisions.

4. The SCNF needs to maintain and calibrate its RAWS prior to each fire season to ensure accurate and reliable weather information.

5. The
raised concerns about the performance of the Ferguson Type II crews (18A and 18B) on the Cramer Fire. On July 20, 18B got lost enroute to the fire and had difficulty communicating on the radio. As a result, the crew did not arrive in time to initial attack the Cramer Fire. On July 21, 18B and, on July 22, 18A and 18B were pulled off the line due, in part, to poor line production, supervision problems, and/or disorganization. The Ferguson crews are Type II, IA certified. IA certification requires that each crew have three ICs Type V and that 60 percent of the crew members have 1 or more years of firefighting experience. A review of the Ferguson crews' training records and qualifications showed that their ICs Type V were qualified on large fire assignments and that their task books were signed by the company president. The Forest Service contracting officer at NIFC with responsibility for Type II crew contracts should verify the certification process and sign off procedures for contract crew qualifications.