FINAL REPORT

RELEASE APPROVED FOR GENERAL REVIEW AND LESSONS LEARNED AT ALL UNITS

Potential Entrapment
Rivera Mesa Fire
New Mexico State Forestry
Las Vegas, New Mexico

June 18, 2006

Final Report

Incident: Potential Entrapment – SFIHC Assistant Crew Superintendent

Location: Rivera Mesa Fire

Date: June 18, 2006

Review team leader:
Donald J. Bright, Forest Supervisor; Nebraska National Forest

/s/ Donald J. Bright	10/27/2006
Signature	Date

Review team members:

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Preliminary Factual Section

Executive Summary

An incident occurred on the Rivera Mesa Fire, Las Vegas, New Mexico involving the Santa Fe Interagency Hot Shot Crew (SFIHC). The incident occurred under New Mexico State Forestry jurisdiction.

On June 18, 2006, the SFIHC arrived in the early afternoon on a fire that had been burning for three days. As the fire began to grow its priority increased and a decision was made to suppress it. At the time of engagement the predicted weather was warmer and drier, winds were predicted at 15-20mph and the region was heavily engaged in fire suppression activities.

SFIHC Assistant Superintendent was forced to drop his pack and run for his life. No notification of this incident occurred up the chain of command by the SFIHC Crew Superintendent until June 25, 2006.

This review team was convened based on limited information and preliminary determination that the incident was a "near miss" (based on information provided by the US Forest Service to New Mexico State Forestry Division approximately three weeks after the incident took place) or "potential entrapment" (Santa Fe National Forest and Region 3 of the USDA Forest Service). The focus of this review was two pronged: first to evaluate whether an entrapment had occurred; and second, to evaluate the failure to report the incident in a timely manner.

The Review Team concluded that:

- What occurred met the classic definition of an entrapment.
- The SFIHC Crew Leadership failed to report the incident in a timely manner.

Background

The event was not reported until seven days after it occurred. Based on the information provided in this initial report, it appeared to meet the definition of "entrapment". There was further delay in reporting as discussions were held between multiple agencies, since the fire was under the jurisdiction of New Mexico State Forestry Division. For these reasons, the review team began work more than a month after the event. With the passage of that much time it was inevitable that memories were less clear than they would have been immediately after the event.

Narrative

Mission and Timeline

The Rivera Mesa Fire started on June 15, 2006 and was under the jurisdiction of New Mexico State Forestry Division (NMSFD), Las Vegas District, located north of Las Vegas, New Mexico.

The SFIHC was dispatched to the fire on June 18, at 1235. The crew arrived on the fire at approximately 1300 that afternoon. They had just been released from the Harding Complex (also NMSFD jurisdiction) and went directly to Rivera Mesa Fire from Harding. The crew arrived at a helispot near the fire at approximately 1300 and was informed that they would be flown to the fireline by helicopter. The SFIHC Assistant Crew Superintendent accompanied the first aircraft load to the fireline; the rest of the crew was flown in on two subsequent loads, with the SFIHC Crew Superintendent arriving with the last load. The fire size was estimated to be 20 to 80 acres by different accounts. The SFIHC Crew Superintendent scouted the fire from the air during his ride in and determined that there was a column building on the northeast side of the fire and the fire was "lost". Others commented about the building column and rapid increase in fire size.

The weather predicted the morning of June 18 was mostly sunny, temperature 75-80 degrees, RH 7%, wind was predicted to increase in the afternoon to 15-20 mph from the south. Temperatures were predicted to increase 6 degrees and humidity to decrease 2% from the previous day.

At approximately 1330, all crew members were on the fireline. Before the SFIHC Crew Superintendent arrived, the SFIHC Assistant Crew Superintendent proceeded ahead of the crew with a NMSFD crewmember to scout the fire.

When the SFIHC Crew Superintendent arrived, he called the SFIHC Assistant Crew Superintendent back by radio and tied in with the NMSFD crewmember and the SFIHC Assistant Crew Superintendent to develop a plan.

Sometime after 1330 the Incident Commander (IC) from NMSFD called on the radio to ask his fellow crewmember if he could take over as IC for 1 ½ to 2 hours while he headed down the road (left the fire) to get two dozers and to order a Type II Incident Management Team (IMT) to take over the fire.

The NMSFD crewmember who had been asked to assume command told the SFIHC Crew Superintendent he wasn't qualified as Incident Commander Type 3 (ICT3) and asked the SFIHC Crew Superintendent if he would take over as IC. The SFIHC Crew Superintendent agreed. The crews were lined out and an anchor point was chosen; they proceeded to work the east flank toward the north. Resources at this time included a helitack crew at the helispot and a NM State Crew (Mammoth) at the heel of the fire with SFIHC.

After the plan was developed, the SFIHC Assistant Crew Superintendent again went ahead of the crew to scout the fire. At approximately 1345-1400, the SFIHC Assistant Crew Superintendent had hiked about 10 minutes toward the head of the fire when he overheard on the radio that the

fire had bumped the line and the crew was moving to the west flank. This was decided by the SFIHC Crew Superintendent after receiving information from Air Attack that the fire was very active on the east flank and it would be futile to attempt to construct fireline and hold the fire on the east flank at that time.

The SFIHC Assistant Crew Superintendent continued ahead a few more minutes and got into a meadow at the head of the fire. He believed that he might be able to slow the progress of the fire at this point if he could get retardant drops. He informed his Superintendent of this, and his Superintendent told him they had pulled back from the east flank. The SFIHC Crew Superintendent told the SFIHC Assistant Crew Superintendent to be careful; the Assistant Crew Superintendent said he was fine, he was in safe spot in a meadow.

At about 1415-1430, the SFIHC Assistant Crew Superintendent continued around the head of the fire towards the west flank. He inquired about retardant drops from Air Attack, but was informed that it was too smoky for retardant drops. He was also told that the only available retardant air resources were Single Engine Air Tankers (SEATs), and they were committed to supporting crews on the west flank.

At about 1445-1500, fire behavior intensified, and the SFIHC Assistant Crew Superintendent noticed that the fire had crossed the meadow and was moving. He started moving west, away from the fire. Almost immediately the wind shifted and was now coming from the east, and the west flank and head of the fire started moving toward him. Looking behind him, the SFIHC Assistant Crew Superintendent saw a 100' wall of flames headed toward him. Looking south and southwest along the flank, he noticed the fire would possibly cut off his escape route to the south.

The SFIHC Assistant Crew Superintendent started moving west at a run. He felt that he was not getting away from the fire and that he might not survive. He saw no deployment zone and realized the fire intensity was not survivable: his only option was to run faster. He removed his pack, kept his shelter, radio, tool and water. He could "hear the train", but didn't feel the heat as he ran through scattered 50' trees, grass, and rocks. During the next five minutes he looked for, but could not find, anywhere to deploy his shelter. He realized that running west was not a good option and shifted his direction to south.

As the SFIHC Assistant Crew Superintendent continued to run, the smoke column rolled over him, cutting visibility to 15-20 feet. He inhaled a lot of smoke, but kept running until he got around the flaming front. At approximately 1530, he was directionally disoriented and attempted to establish contact with the crew. After about 45 minutes he was able to rejoin the crew

The crew was released from Rivera Mesa back to Santa Fe on June 25. The SFIHC Crew Superintendent reported the near-burnover incident to the Santa Fe National Forest Acting Forest Fire Management Officer

Injury or Damages

On July 25, the SFIHC Assistant Crew Superintendent was asked to file a CA-1. The SFIHC Assistant Crew Superintendent reported the incident and noted smoke inhalation. "Emotional trauma" was added to the description of the injury as per Marlene Nunez, R3 OWCP Coordinator (and review team member). Nunez talked with the R5 OWCP Coordinator to explain the circumstances related to the delay in filing the report.

Organizational Context

The Santa Fe National Forest has been lacking key staff for quite some time due to vacancies. The Forest Fire Staff Officer has been vacant for almost a year and a half. The SFIHC had two key staff vacancies, including the Assistant Crew Superintendent (during the potential entrapment the Assistant Superintendent was a detailer) and the Advanced Squad Leader. These vacancies and the associated lack of Forest oversight probably contributed to this event.

Compliance with Directives

There was no standard briefing given to SFIHC at the helispot before transporting crewmembers to the fireline. There was no clear announcement of who the Incident Commander was. The crew (including crew leadership) was unsure who the IC was. When transfer of command occurred to a second individual, it was not communicated to all personnel on the fire, as required.

Work/rest policy was violated over a long period of time before this incident.

Training and Qualifications

The SFIHC Crew Superintendent was qualified as ICT4, not as an ICT3. Other crew leadership qualifications appear to be in order, as currently required.

Attitudes and Performance

The SFIHC Assistant Crew Superintendent was not used by the Superintendent to fulfill the leadership role needed in the crew structure. He was almost exclusively used as a scout and an errand runner. Briefings were less than adequate, and there were few, if any, "After Action Reviews" (AAR's).

Causal and Contributing Factors

The review team used a matrix to determine the degree to which various elements contributed to the potential entrapment situation. After review, the team determined this was clearly an entrapment and one of our employees nearly lost his life. Further discussion relating to the team's conclusions may be found in the narrative following the matrix.

The team used the elements to describe the positive and negative conditions and events leading to the entrapment.

Entrapment Elements

	Did not contribute	Influenced	Significant contribution
Fire Behavior			
Fuels			X
Weather			X
Topography	X		
Predicted *vs.* observed			X
Other (drought)		X	
Environmental Factors			
Smoke, temperature, embers			X
Slope	X		
Visibility		X	
Incident Management			
Incident Command			X
Strategy	X		
Tactics			X
Safety briefings/major concerns			X
Instructions given			X
Control Mechanisms			
Span of control	X		
Communications			X
Ongoing evaluations			X
Ten Std Fire Orders/18 Watch-out Situations, LCES			X
Personnel Profiles of Those Involved			
Training/qualifications/physical fitness	X		
Length of operational period/fatigue			X
Attitudes			X
Leadership			X
Experience levels		X	
Equipment			
Availability	X		
Performance/non-performance	X		
Used for intended purpose	X		
Other	X		

Fire Behavior—

- **Fuels:** The crew, except for the SFIHC Assistant Crew Superintendent, was experienced in fighting fires in these fuel types. Fire behavior was not monitored by lookouts and supervisors. Fire severity conditions were underestimated.

- **Weather:** Firefighters did not have, nor did they request, a spot weather forecast for the Rivera Mesa area. The general forest area fire weather broadcast was overheard, however no crew briefing was received prior to engagement. Fire conditions at the time were severe and fire behavior was noted by many individuals as severe with rapid fire growth. A Type 2 Team was being ordered as the crew was arriving and being transported to the fire.

- **Topography:** Topography, for the most part was not a factor in the rapid increase in this fire on the day of the potential entrapment.

- **Predicted *vs*. observed fire behavior:** The fire behavior discussion over the Forest Radio net called for extreme fire conditions. Many crew members recognized the fire was rapidly expanding in size and the column was growing rapidly.

- **Other (Drought):** The ongoing drought conditions contributed to increased fire behavior but was not a significant contributor to the entrapment.

Environmental Factors—

- **Smoke, temperature:** Smoke was a contributing factor in the entrapment. Thick smoke, watering eyes, and heavy coughing all served to reduce the ability to see, sight distance, and the rate of travel as the SFIHC Assistant Crew Superintendent tried to escape.

- **Terrain:** The rocky and brush filled terrain greatly reduced the options for escape routes and safety zones.

- **Visibility:** As the fire activity increased, the smoke restricted visibility. As the SFIHC Assistant Crew Superintendent became entrapped, heavy smoke reduced his ability to find his way to safety.

Incident Management—

- **Incident Command:** During this incident there was confusion for more than two hours over who was serving as IC and if that same person was leading a crew, which contributed to the entrapment. The Crew Superintendent had been offered and accepted a role as IC. He should not have accepted this position as he had other responsibilities and since the fire was most likely a Type 3 Incident by that time. That said, having accepted the role as IC, he failed to properly transfer command and to make proper notifications, and he failed to turn over management of his crew to his second in command. As IC and Crew Boss he had two roles and failed to redeem the responsibility of either one successfully. The State Type 3 IC should not have departed from the fire to order a Type 2 Team and should not have delegated command to anyone with lesser qualifications than himself. He should have stayed at the fire as IC or passed command to someone as qualified or higher.

- **Objectives:** There were no defined objectives other than to put the fire out. Failure by the IC to define the objectives, including Firefighter Safety, may have contributed.

- **Strategy:** While suppression strategies were not outlined by the State IC, they were described by the Crew Superintendent serving as IC. The lack of initial briefing on suppression strategies did not contribute to the entrapment situation.

- **Tactics:** Sending or allowing a scout to be ahead of the crew in open fuels without constructed line or a clearly identified safety zone and escape routes is a violation of Standard Fire Orders and significantly contributed to the entrapment and near death situation. This was compounded by a failure to forcefully recall the scout when the fire was blowing up, when the crew had to return to their safety zone, or when Air Attack directed the crew to move to the other flank of the fire for their safety.

- **Safety briefings:** This element is rated for significant contribution, as a standard Safety Briefing was not received.

- **Instructions given:** Overall, the instructions (or lack of proper instructions) given to a crew member significantly contributed to the entrapment. Safety Zones and escape routes were not identified. LCES procedures were not discussed.

Control Mechanisms—

- **Communications:** The crew had an adequate supply of operable radios. Communications equipment worked between crew members. Radio discipline was poor.

- **Supervision, Evaluations, and AAR**: The newly appointed Assistant Superintendent was not utilized properly in the position and instead was almost exclusively used over several weeks as a scout and not directed to supervise the squad bosses. The Crew Superintendent, instead of looking out for the welfare of his personnel during a critical stage in the fire, was serving two roles as IC and Crew Superintendent and was actually heads down digging line with his crew at or near the time of the entrapment.

- **Ten Standard Fire Orders/18 Watch-out Situations and LCES:** (Reference analysis of Fire Orders and Watch outs on following pages.)

Personnel Profiles of Those Involved—

- **Training/qualifications/physical fitness:** An initial review of Incident Qualifications indicates that crew leadership was qualified for the positions for which they served with the exception of the SFIHC Crew Superintendent, who served as ICT3. The SFIHC Crew Superintendent was qualified as a trainee ICT3; however he didn't have a qualified ICT3 on site to provide required supervision. Some individuals would state this was a Type 4 fire, however witness statements indicate the fire was blowing up (at the time of arrival) and a Type 2 team was being ordered. There is little doubt the fire was at a Type 3 complexity or higher at the time the SFIHC Crew Superintendent accepted the IC role.

- **Length of operational period/fatigue:** Work/rest policies were violated by the crew, leaving the conclusion that fatigue was likely a factor in the decisions made the day of the entrapment.

- **Attitudes:** The crew needed the Assistant Superintendent position filled in order to comply with national minimum staffing requirements, however crew leadership didn't incorporate the detailer into the crew in the intended position (duties). Crew leadership exhibited a disregard for standard safe operating procedures.

- **Leadership:** Crew leadership did not adopt or accept the detailer into the crew in the position being filled. Leadership was unsupportive of the detailer's role as Assistant Superintendent.

- **Experience levels:** The SFIHC Crew Superintendent was well experienced, had worked at past fatality fires (30 Mile and Storm King).

Equipment—

- **Availability:** Air attack was over the fire. He recommended the crew move to the other (safer) flank of the fire when the fire intensity increased. Air Attack was never consulted by the Crew Boss concerning the safety and welfare (or location) of the lost crew member.

Evaluation of 10 Standard Fire Orders, 18 Watch-Out Situations, and Five Common Denominators of Fire Behavior on Tragedy Fires

The 10 Standard Fire Orders were evaluated to determine both their application and any violations.

10 Standard Fire Orders	Did not Contribute (Order was followed)	Influenced	Contributed Significantly (Order was not followed)	Unknown
#1 – Fight fire aggressively but provide for safety first.			X	
#2 – Initiate all action based on current and expected fire behavior.			X	
#3 – Recognize current weather conditions and obtain forecasts.			X	
#4 – Ensure instructions are given and understood.			X	
#5 – Obtain current information on fire status.			X	
#6 – Remain in communication with crewmembers.		X		
#7 – Determine safety zones and escape routes.			X	
#8 – Establish lookouts in potentially hazardous situations.			X	
#9 – Retain control at all times.			X	
10 – Stay alerts, keep calm, think clearly, and act decisively.			X	

Evaluation of adherence to the Ten Standard Fire Orders

The Ten Standard Fire Orders were not followed. The fire was fought aggressively, however the crew did not provide for safety first when they allowed a crew member to work in an unsafe area a half mile ahead of the crew without LCES in place. This individual became entrapped and had to run for his life. Up to this point the situation might have been handled as a "Lessons Learned", however no crew AAR was initiated, no timely notifications were made.

- #1 – Crew member and crew leadership failed to ensure all personnel were safe, that they had escape routes and a safety zone
- #2,3 - Briefings were inadequate and haphazard, hazards were not addressed
- #3 - Crew leadership failed to obtain current weather forecasts
- #4 – Proper instructions were not given or they were not clearly understood. Disagreement exists between statements concerning the acceptable or safe distance the scout was allowed to work ahead of the crew. Crew leadership failed to provide clear instruction or he failed to enforce his instructions if they were not understood
- #5 – Scouting crew member failed to obtain current information about fire status from Air Attack (or elsewhere) in order to realize another head of the fire was about to compromise his escape route. Crew Supervisor failed to determine where his crew member was located in relation to the fire and was therefore unable to recognize he was about to become entrapped.
- #6 - Good communications were established; however radio discipline was poor.
- #7 – LCES was not in place. The scouting crew member did not have an adequate safety zone and escape route, and the Crew Superintendent failed to ensure the crew member had an adequate safety zone and escape route. He asked if he was safe, however he did not ensure he was safe, as was his leadership responsibility.
- #8 – A lookout was not established nor utilized. Air Attack could have served as a lookout had he been requested to locate the scouting crew member and to evaluate his position in relation to the fire.
- #9 - There was confusion as to who the Incident Commander was, during and at different times throughout the incident. Crew leadership failed to retain control of crew personnel at all times. A proper chain of command on the crew was not established or understood by all crew members.
- All PPE was worn and used properly

The 18 Watch-Out Situations were evaluated in terms of their application and contribution to entrapment that occurred.

18 Watch-Out Situations	Did not Contribute (Not applicable and/or was considered if applicable)	Influenced	Contributed Significantly (was applicable and wasn't considered)	Unknown
1 – Fire not scouted and sized up.	X			
2 – In country not seen in daylight.	X			
3 – Safety zones and escape routes not identified.			X	
4 – Unfamiliar with weather and local factors influencing fire behavior.	X			
5 – Uninformed on strategy, tactics, and hazards.			X	
6 – Instructions and assignments not clear.			X	
7 – No communication link with crewmembers or supervisor.		X		
8 – Constructing line without safe anchor point.	X			
9 – Building fire line downhill with fire below.	X			
10 – Attempting frontal assault on fire.	X			
11 – Unburned fuel between you and fire.			X	
12 – Cannot see main fire, not in contact with someone who can.			X	
13 – On a hillside where rolling material can ignite fuel below.	X			
14 – Weather becoming hotter and drier.			X	
15 – Wind increases and/or changes direction.			X	
16 – You are getting frequent spot fires across the line.	X			
17 – Terrain and fuels make escape to safety zones difficult.		X		
18 – Taking nap near fire line.	X			

Evaluation of adherence or consideration of the 18 Watch-Out Situations

The 18 watch-out situations were not appropriately considered. The strategy, tactics and hazards were not clearly identified and briefings were inadequate. No Spot weather forecast was taken nor communicated. Instructions and assignments were not clear and understood by all personnel. Communications were well established, but not properly employed among resources on the fire.

- #1 – Fire was not adequately scouted and sized up as crew member was out in front of a multiple head fire, had his escape route cut off, and became entrapped such that he thought he was going to die and was forced to run for his life.
- #3 – Safety zones and escape routes were not identified by crew leadership and were inadequate
- #5 – The crew member who was entrapped was not sure if he was the Crew Boss when the Crew Boss accepted a role as IC. Crew member was not aware of tactical change when crew was forced to repeatedly move to their safety zone (back down the line into the black).
- #6 – Crew member's instructions and assignment were not clear, particularly after the entrapment.
- #7 – Crew member's call for assistance was repeatedly ignored by crew leadership.
- #11 – Crew member was allowed to work in an unsafe location a half mile ahead of the crew with unburned fuel between him, the fire, and escape.
- #12 – Crew member could not see the main fire and did not utilize Air Attack as a lookout to evaluate his position prior to or following entrapment.
- #14 – Weather was becoming hotter and drier and fire behavior was increasing with no change in behavior by crew member out in front of the fire.
- #15 – The wind was increasing and changing direction with no recall of the crew member who was out in front of the fire.
- #17 – Terrain and fuels made escape to a safety zone difficult.

FINDINGS

1. THE SFIHC ASSISTANT CREW SUPERINTENDENT EXPERIENCED AND SURVIVED A FIRE ENTRAPMENT

The paragraph below is from Page 35 of:

Accident Investigation Guide: 2005 Edition
Pub N: 0567-2806-MTDC, Chg N: WFPR01
File Desig: 6700—SAFETY AND HEALTH
Proj N: 7E72H46—Accident Investigation Guide
February 2005

"In a wildland fire environment:"

- *"A deployment refers to the use of a fire shelter."*
- *"An entrapment is a situation where personnel are unexpectedly caught in a fire-behavior-related, life-threatening position where planned escape routes or safety zones are absent, inadequate, or have been compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose." (Investigating Wildland Fire Entrapments: 2000 Edition, 0051–2869–MTDC*)

a. The SFIHC Assistant Crew Superintendent was unexpectedly caught in a fire behavior related life-threatening position.
b. His planned escape route or safety zone was absent, inadequate, or was compromised

2. FAILURE OF LEADERSHIP AND SUPERVISION

The SFIHC Crew Superintendent failed to adequately supervise his crew or to state clear expectations, resulting in employees being put in harm's way.

a. The SFIHC Crew Superintendent did not notify anyone about the SFIHC Assistant Crew Superintendent's entrapment and near fatality.
b. The SFIHC Crew Superintendent did not seek critical incident stress debriefing for his traumatized employee or crew.
c. The SFIHC Crew Superintendent allowed one employee to leave the crew and work alone .5 mile away near the head of a rapidly growing fire without ordering his recall.
d. The SFIHC Crew Superintendent and Squad Bosses failed to obtain or give an adequate briefing to the crew or their squad.

3. FAILURE TO PROVIDE ADEQUATE FIRE LEADERSHIP AND COMMAND

The SFIHC Crew Superintendent stated that he was asked to accept command of the fire from a NMSFD crewmember after the crewmember was given command by the IC (another NMSFD crewmember). The IC from NMSFD said he did not transfer official command to his crewmember nor to the SFIHC Crew Superintendent, but merely asked that the SFIHC Crew Superintendent watch over the State crew, SFIHC and Santa Fe Helitack while he was busy elsewhere. The SFIHC Crew Superintendent was not qualified to take command, did not notify others of the transfer of command, and did not relinquish command of the SFIHC to his Assistant Superintendent, continuing with two jobs.

a. The SFIHC Crew Superintendent accepted two concurrent roles on a fire (IC and Crew Superintendent) in violation of 30 mile directives.
b. The SFIHC Crew Superintendent failed to properly transfer command after accepting the IC role and failed to properly notify dispatch and all fire resources of his acceptance of the IC role.
c. The fire was a Type 3 Incident.
d. The SFIHC Crew Superintendent was not qualified as an ICT3; he is an ICT3 trainee and needed a fully qualified ICT3 to supervise him.

4. FAILURE TO COMPLY WITH AGENCY POLICY AND STANDARDS

a. Both the SFIHC Crew Superintendent and Assistant Crew Superintendent were in violation of the Standard Fire Orders, 18 Watchouts, and LCES principles.
b. The SFIHC Crew Superintendent failed to report the release of an employee to dispatch and to his supervisor—failed to follow proper procedures (no notification of home unit that employee was on the road home, and no notification to supervisor that employee had been released until the day after he was released and traveling home).

5. FAILURE TO PROVIDE ADEQUATE OVERSIGHT OF SFIHC

a. Santa Fe NF: Inadequate visits with the crew before, during and after fire assignments to ensure safety, compliance with rules and regulations, crew cohesion, and to ensure After Action Reviews are routinely conducted.

6. FAILURE TO MAINTAIN AN IDENTIFIED AND QUALIFIED IC AT

THE FIRE SCENE

a. There should have been no confusion over who the IC was at the Rivera Mesa Fire. This type of confusion has been causal in fatality fires in past years. The IC must remain on-site at the fire scene on Type 3, 4 and 5 fires where no Operations Chief is present. If the IC must depart the fire area, he must transfer command to a qualified individual for the complexity of the fire, or at least as highly qualified as the current IC, and must make the transfer of command known to all firefighters and dispatch. If a qualified ICT3 had retained control of the fire and the SFIHC Crew Superintendent was not fulfilling two roles, this incident might not have happened. However, the review team found minimal evidence that the SFIHC Crew Superintendent was actually performing IC duties. Therefore, confusion over who was IC was not a contributing factor.