*United States Department of Agriculture*
*OFFICE OF INSPECTOR GENERAL-INVESTIGATIONS*

# REPORT OF INVESTIGATION

FILE NUMBER: REDACTED TEXT] DATE: November 30, 2009

TITLE: ESPERANZA FIRE FATALITY INVESTIGATION
Banning, CA

CASE TYPE: Fire Fatality

SPECIAL AGENT: [ REDACTED TEXT ]
Special Agent

APPROVED BY: [ ]
[ REDACTED TEXT ]
Special Agent-in-Charge

Distribution:

1- Chief , US Forest Service
2- Assistant Inspector General for Investigations
3- File

## SYNOPSIS

This investigation was initiated in response to the mandate of Public Law 107-203 which was codified at 7 United States Code (U.S.C.) 2270b that the United States Department of Agriculture (USDA), Office of Inspector General (OIG) conduct an independent investigation of each fatality of a Forest Service employee that occurs as the result of a wildfire entrapment or burnover. The USDA OIG, Wildland Fire Investigation Team (WFIT), conducted the investigation of the Esperanza fire of 2006 and found no criminal wrongdoing on the part of Forest Service or California Department of Forestry and Fire Protection (CAL Fire) personnel.

While the WFIT investigation identified some inconsistencies between the Safety and Accident Investigation Team's (SAIT) report and information obtained during our interviews, WFIT had no reason to question the validity of the SAIT report's scientific data to include the overall weather and fire behavior of the Esperanza Fire.

## BACKGROUND

### The Esperanza Fire

Agent's Note: A glossary of terms and acronyms has been added on pages 14-25, which provides definitions of fire related terms utilized (and placed in **bold**) throughout this report. The glossary of terms and acronyms was obtained from the SAIT report.

The Esperanza fire was first reported at 1:11 a.m. on October 26, 2006, in Cabazon, California. The fire, later determined to have been started by an arsonist, burned in excess of 41,000 acres and destroyed a total of 34 residences and 20 outbuildings.

The Esperanza fire started in the jurisdiction of CAL Fire. Due to extremely dry conditions and the onset of the **Santa Ana winds**, the fire quickly spread. CAL Fire requested mutual aid from the Forest Service early in the fire's progression based on an Interagency Cooperative Fire Protection Agreement. Specifically, CAL Fire requested a pre-planned response of five **Type III Fire Engines** from the San Bernardino National Forest (San Bernardino NF). As a result of the request, San Bernardino NF dispatched Forest Service Fire Engines 51, 52, 54, 56, and 57 to respond to the **Incident Command Post** (ICP) in Cabazon, California.

The Forest Service fire engines and their crews were assigned to conduct evacuations and structure protection in the Twin Pines area. On October 26, 2006, between 6:50 a.m. and 7:15 a.m., five Forest Service crew members from Engine 57 were fatally burned in a burnover while conducting structure protection at 15400 Gorgonio View Road.

## OIG's Responsibility

In 2002, Congress passed PL 107-203, which was codified at 7 U.S.C. 2270b, which states, "In the case of each fatality of an officer or employee of the Forest Service that occurs due to wildfire entrapment or burnover, the Inspector General of the Department of Agriculture shall conduct an investigation of the fatality. The investigation shall not rely on, and shall be completely independent of, any investigation of the fatality that is conducted by the Forest Service." As a result of this Congressional mandate, on October 27, 2006, four members of WFIT reported to San Bernardino, California, in response to the initial four Forest Service employee fatalities from the burnover.

## Safety and Accident Investigation Team (SAIT)

In the event of a serious accident, the Forest Service must conduct a serious accident investigation. The SAIT team members for the Esperanza fire consisted of 18 primary interagency members and 14 technical specialists who were given full authority as described under the Cooperative Fire Protection Agreement (Exhibit 1). This is an agreement between the Bureau of Land Management, National Park Service; Forest Service; and CAL Fire. In accordance with the agreement, it enables the SAIT to perform the following:

- Identify factual data associated with the circumstances relating to the accident
- Accurately and objectively record the findings of the investigation
- Analyze the findings to determine factors involved and their relationship
- Recommend actions that should be immediately implemented to prevent similar, future occurrences
- Develop and submit a Factual Report and Management Evaluation Report to the Chief of the Forest Service and the Director for the California Department of Forestry and Fire Protection

The SAIT Factual Report (Exhibit 2), dated May 22, 2007, is a comprehensive report of the SAIT's findings. The report was provided to the Chief of the Forest Service and the Director of CAL Fire.

## OIG Response

A visit was made by WFIT members to the fatality site on October 28, 2006, during which time WFIT learned that CAL Fire was the lead agency for the SAIT and maintained clear custody and control of all evidence and records related to the SAIT investigation. Additionally, the scene was secured by the Riverside County Sheriff's Department. The Esperanza fire was the first deployment of WFIT, since the mandate of 7 U.S.C. 2270b, where a state agency, CAL Fire, was in command of the fire.

In order to maintain independence, WFIT did not participate in any SAIT witness interviews or the SAIT investigative process. Since the bodies of three deceased crew members had been removed from the scene prior to the arrival of WFIT, some photos were obtained from the SAIT. However, photographs of the scene and photographs of the remaining physical evidence were taken by WFIT. The separate missions of WFIT,

CAL Fire, and the SAIT, had a negative effect on the SAIT investigation because witnesses refused to give statements for fear of potential criminal prosecution. As a result, a decision was made by the Special Agent-in-Charge, who supervises WFIT, to delay WFIT investigation so that the SAIT could commence with witness interviews. WFIT, due to scheduling issues, did not begin interviews until January 2008.

## INVESTIGATIVE SUMMARY

A review of the [REDACTED TEXT ] Radio Dispatch Log [ REDACTED TEXT] shows the Esperanza fire was first reported on Thursday, October 26, 2006, at 1:11 a.m. Pacific Daylight Time. [ REDACTED TEXT ], CAL Fire Battalion Chief, arrived on the scene at 1:24 a.m. and requested the pre-planned response of five **single resource** Type III fire engines from the San Bernardino NF. The CAL Fire Dispatch Log [ REDACTED TEXT] notes a **Unified Command** at 3:10 a.m. with [ REDACTED TEXT ], CAL Fire Division Chief as **Incident Commander** (IC).

[ REDACTED TEXT ], Forest Service Battalion Chief [ REDACTED TEXT] was interviewed and stated in part:

> He received a call from dispatch at about 1:30 a.m. on October 26, 2006, and reported to the **Incident Command Post** (ICP) at Cabazon Station 24. When CAL Fire uses Forest Service resources, the Forest Service assigns an Agency Administrator as liaison. He assumed this liaison position. [CAL Fire Battalion Chief] was the IC upon his arrival. [ REDACTED TEXT], Forest Service Division Chief, arrived and was briefed. [ REDACTED TEXT ] Forest Service, Fire Management Officer (FMO), also reported to the ICP. [CAL Fire Division Chief/ IC] took over as IC and [CAL Fire Battalion Chief] became **Branch** I. Forest Service was still participating as an agency representative and had not entered into the Unified Command.
>
> [ FS Division Chief ] [ REDACTED TEXT] was interviewed and stated in part:
>
> He arrived at the ICP around 3:35 a.m. on October 26, 2006. [FS Battalion Chief ] was already at the ICP and [ CAL Fire Division Chief/IC ] was the IC. There was some confusion with the Congressional Boundary but it was resolved and [ CAL Fire Division Chief/ IC ] understood the fire was not on the National Forest at that point, but would probably get there. The location of the fire determines which agencies participate in the **Unified Command**. The Riverside Sheriff's Department was in Unified Command with CAL Fire at the time.

Agent's Note: Congressional Boundary is a term used to identify the boundaries between parcels of land.

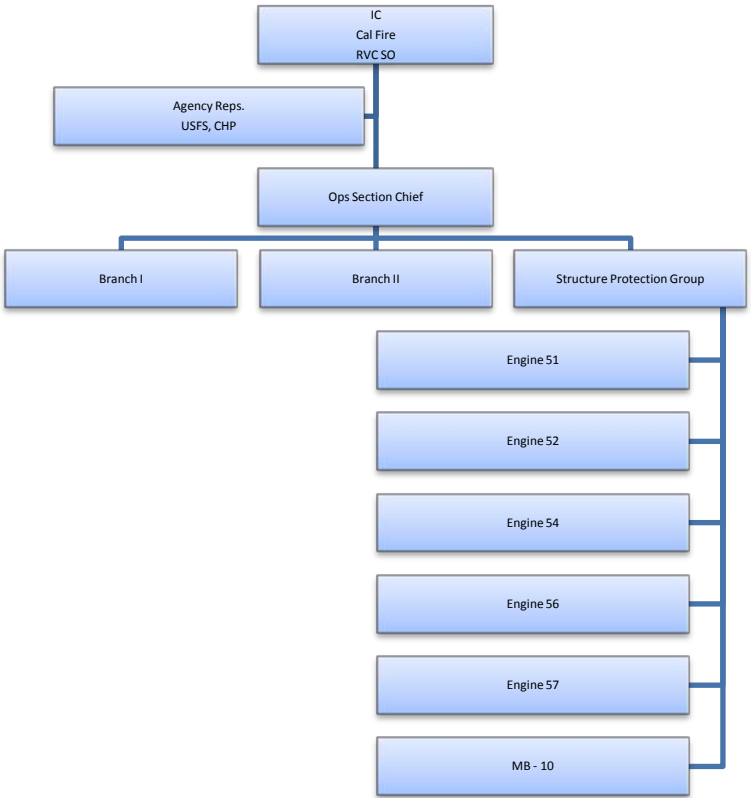
[ FS FMO ] [REDACTED TEXT] was interviewed and stated in part:

> He arrived at the ICP just before 5:00 a.m. on October 26, 2006. [ FS Battalion Chief ] was the Forest Service Agency Representative at the ICP. He was briefed by [ FS Battalion Chief ] and [ FS Division Chief ] concerning the Congressional

Boundary issue. [ FS Division Chief ] advised that there was a block of six sections of land that were in the state **Direct Protection Area**. [ FS Division Chief ] cleared up the Congressional Boundary issue with [ FS Battalion Chief ], [ CAL Fire Division Chief/ IC ], and [ REDACTED TEXT], Deputy Chief, CAL Fire. He, [ FS Division Chief ] and [ CAL Fire Deputy Chief] then had a conversation clarifying **trigger points**, ordering an **incident management team**, and the point at which Forest Service would go into a Unified Command with CAL Fire. The trigger point for Unified Command was determined to be if the fire crossed highway 243 at Twin Pines Road. It was further discussed that [ FS Division Chief ] would become the Forest Service, IC if the fire progressed to the trigger point. [ CAL Fire Deputy Chief ] wanted to confirm that CAL Fire and the Riverside Sheriff's Department were in Unified Command.

[ REDACTED TEXT], Captain, San Bernardino NF Engine 51, and [ REDACTED TEXT], Captain, San Bernardino NF Engine 52, arrived at the ICP. [ FS Engine 51 Captain ] [REDACTED TEXT] and [ FS Engine 52 Captain ] [REDACTED TEXT] both confirmed that [ FS Battalion Chief ] and [ FS Division Chief ] were at the ICP as Agency Representatives. [ FS Engine 51 Captain] advised he was told to get his assignment from [ CAL Fire Division Chief/IC].

Based on interviews conducted by WFIT, the following diagram represents the IC Structure at the Esperanza fire on October 26, 2006, from approximately 3:00 a.m. until after the **burnover**. Individual diagrams prepared by [ REDACTED TEXT], CAL Fire Branch II Supervisor, and [ FS FMO ] are attached [REDACTED TEXT] and show their recollection of the command structure.




**Esperanza Fire IC Structure**

Review of [REDACTED TEXT] Unit Log, Form-214 [ REDACTED TEXT], dated October 28, 2006, at 2200 hours, shows the notation at 3:15 a.m. for the operational period October 26, 2006, "Unified IC w/B54 and [ REDACTED TEXT] from BDF. Also unified with RSO, CHP."

Agent's Note: The abbreviations for the entry reflect, Unified Incident Command with [ CAL Fire Division Chief/IC], [ FS Battalion Chief] from San Bernardino NF, Riverside Sheriff's Office (RSO), and the California Highway Patrol (CHP).

Review of [ CAL Fire Deputy Chief ] Unit Log, Form – 214 [REDACTED TEXT], dated October 28, 2006, at 2200 hours, shows the notation at 3:15 a.m. for the operational period October 26, 2006, "Unified IC w/B54 and [ FS Battalion Chief ] from BDF. Also unified with RSO, CHP."

Agent's Note: The abbreviations for the entry reflect, Unified Incident Command with [ CAL Fire Division Chief/IC ], [ FS Battalion Chief ] from San Bernardino NF, Riverside Sheriff's Office (RSO), and the California Highway Patrol (CHP).

[REDACTED TEXT], Forest Supervisor, San Bernardino NF [REDACTED TEXT] was interviewed and stated in part:

> She received a call from dispatch regarding the Esperanza fire at approximately 3:00 a.m. on October 26, 2006. She called [ FS Fire Management Officer ] around 5:00 a.m. and he was on his way to the ICP to assess the situation. She received another call from dispatch around 8:00 a.m. advising of the burnover. She does not recall being notified of a Unified Command with the Forest Service until after the burnover. Based on protocol, she would have had a discussion with her Deputy Regional Forester when they were in a Unified Command. This discussion did not take place until after the burnover. CAL Fire was in charge of the fire at the time of the burnover and was in charge of the initial press release after the burnover.

[ Fire Engine 51 Captain] was interviewed and stated in part:

> He and the other San Bernardino NF Engines were instructed by [ CAL Fire Division Chief/IC] to respond to the Twin Pines Road and Highway 243 area to receive further instruction from Branch. When he arrived at the intersection of Highway 243 and Twin Pines Road, people were evacuating out of Twin Pines Road. There were a lot of other fire engines and emergency vehicles in the area. He checked in with Branch II on the radio. Branch II advised him to check in with the Structure Protection Group Supervisor and to meet up with the other Forest Service engines down the road.

[ CAL Fire Branch II Supvr.] [REDACTED TEXT] was interviewed and stated in part:

On October 26, 2006, he was instructed by [ REDACTED TEXT ], CAL Fire Operations Chief, to respond to the area of Highway 243 and Twin Pines Road to meet Structure Protection Group Supervisor, [ REDACTED TEXT ]. He met [ CAL Fire Structure Protection Supervisor ] at approximately 4:43 a.m. at the intersection of Highway 243 and Twin Pines Road. He was responsible for scouting the area to identify homes, start the evacuation process, and determine the location/direction of the fire. He and [ CAL Fire Structure Protection Group Supervisor] both had copies of a "Red Dot Map" (Exhibit 14) that they used to develop their teams and to get an overview of the area and number of structures. They also used mobile computers, equipped in their vehicles, which allowed the use of aerial maps to see roads, terrain, and structures in the area. All CAL Fire IC personnel had access to this technology known as the Automated Vehicle Locator (AVL), which had been loaded with 2005 aerial imagery.

He advised that the "Red Dot Map" was a contingency study of the Poppet Flats, Pine Cove and Idyllwild areas, dated October 2, 2002. The initial purpose of the Red Dot Map was to show the development and rapid growth in the area in order to justify additional staffing for fire and rescue. The structures inspected and structures considered non-defensible identified on the "Red Dot Map" were not determined by qualified individuals. He used the Red Dot Map strictly for locating structures in the area and determining where he would scout.

He advised that his plan of action was to evacuate Twin Pines Road. No personnel were to go into the lower areas until it was scouted and a plan developed. He drove down Gorgonio View Road and saw the fire burning in the Halls Grade area to the east. He contacted a homeowner living in a blue doublewide trailer, advised the homeowner of the fire, and told the homeowner to evacuate the area within 30 minutes. Based on topography and fuels, he believed the area around the doublewide trailer could withstand the **fire behavior** he observed to the east. He was confident fire engines could safely park in the area. Based on his observations, he requested, from [ CAL Fire Structure Protection Group Supervisor ], a **strike team** of **Type III fire engines** to be deployed to this location. He left the area and drove north on Gorgonio View Road and came to a driveway with a chain across the entrance. This was later determined to be 15400 Gorgonio View Road, the site of the burnover. He continued down Gorgonio View Road and determined the area below Horse Trail Road was unsafe. He returned to Twin Pines Road where he spoke with Engine 57 Captain, [REDACTED TEXT]. He asked [FS Fire Engine 57 Captain ] if he was **Strike Team Leader** qualified and if he would lead a **Strike Team**. [ FS Fire Engine 57 Captain ] acknowledged he would lead a team. As he drove off, he radioed [ FS Fire Engine 57 Captain] and told him to take his directions from [ CAL Fire Structure Protection Group Supervisor ].

Agent's Note: A review of training records by WFIT indicated that [ FS Fire Engine 57 Captain ] was qualified to lead the Strike Team.

[ FS Fire Engine 52 Captain] was interviewed and stated in part:

> San Bernardino NF Engines 52 and 57 met with [ CAL Fire Branch II Supvr.] on Twin Pines Road. They discussed the radio frequencies and were told to perform evacuations and **structure protection** on Wonderview Road. They met with San Bernardino NF Engines 54 and 56 at the staging area and discussed radio frequencies and the plan. Engines 52 and 57 proceeded to Wonderview Road. Engines 54 and 56 stayed back to program radio frequencies. Engine 52 ended up holding at the Tile house, a residence located at 49550 Venision Road. Engine 57 continued down Wonderview Road. He attempted to make contact with Branch [ CAL Fire Branch II Supvr.] and the Structure Protection Group Supervisor [ CAL Fire Structure Protection Group Chief ] several times with negative results. [ FS Fire Engine 57 Captain ] made contact with him over the radio and stated he found a home that was defensible, cleared, and he was beginning **triage** of the area. A portion of the fire branched off and burned toward the Tile House and crossed Wonderview Road. At approximately 6:30 a.m. the fire made a run at the Tile house, and they took cover and waited for the **fire front** to pass.

[REDACTED TEXT], Captain, San Bernardino NF Engine 56 [REDACTED TEXT] was interviewed and stated in part:

> While Engine 56 and 54 were programming radios at the staging area, he was contacted by the Structure Protection Group Supervisor [ CAL Fire Structure Protection Group Supervisor ] and was told to wait on March Air Force Base Brush 10 Fire Engine (MB10). When MB10 arrived, they proceeded to Wonderview Road but had to turn around because the fire had crossed Wonderview Road. They were advised by the Structure Protection Group Supervisor to go to Gorgonio View Road to meet with Branch II. While they were enroute to Gorgonio View Road, Engine 51 joined the group. They briefed Engine 51 of the current situation. Engine 51 had a map of the area and led the Engines to meet up with Branch II. The San Bernardino NF Engines and MB10 started down Gorgonio View Road and met up with Branch II.

[ FS Fire Engine 51 Captain ] advised he got out of his fire engine to discuss the assignment with Branch II. He knew they were headed down the mountain and Branch II stated, “It’s safe.” They followed Branch II down Gorgonio View Road. The **fire behavior** was not out of the ordinary at this time and the wind speeds were light. At one point, the road made a turn and they were headed toward the fire. He sped up to get to the assigned location in order to set up. [ FS Fire Engine 56 Captain] was talking to [ FS Fire Engine 57 Captain ] on the radio about the fire and its location. When they arrived at the doublewide trailer, Branch II advised that this was the location to defend. Branch II then went to check on Engine 57.

[ CAL Fire Branch II Supvr.] advised he met with [ FS Fire Engine 51 Captain ] on Gorgonio View Road and led the fire engines to the doublewide trailer. When he arrived at the doublewide trailer, he noticed lights below the doublewide trailer. He had not told anyone to go to this location. At approximately 6:20 a.m. he proceeded to 15400 Gorgonio View Road. The chain to the driveway was now cut and San Bernardino NF Engine 57 was found parked in front of a garage. Everything was illuminated from the

fire and he could see that Engine 57 personnel were not wearing all of their **Personal Protective Equipment** (PPE). He asked where the Engine Captain was. He met with [ FS Fire Engine 57 Captain ] and asked him to make sure all of his crew was outfitted with their PPE. He and [ FS Fire Engine 57 Captain ] walked to the cut bank, the edge of land above the drainage area, and had a conversation while looking at the fire. He asked [ FS Fire Engine 57 Captain] what his plan was and why he was there.

Agent's Note: All crew members were wearing full PPE prior to Branch II leaving. Review of the Personal Protective Equipment Analysis Summary, on page 89 of the SAIT Factual Report (Exhibit 1), indicates Engine 57 Crew members were wearing appropriate and required personal protective clothing and equipment.

[ CAL Fire Branch II Supvr.] could see the drainage area below, and the fire was holding up on the ridge above. Halls Grade was the area designated as the trigger point to begin the evacuation of the Twin Pines area. The fire was extending to the right, moving toward Twin Pines Road. There was no fire over the ridge or anywhere close to the drainage area at that time. [ FS Fire Engine 57 Captain ] told [ CAL Fire Branch II Supvr. ] that he was a **lookout**. [ FS Fire Engine 57 Captain ] said he could see below them and could see the fire activity in front of them. [ FS Fire Engine 57 Captain ] further advised [ CAL Fire Branch II Supvr. ] that he intended on staying at this location and when the time came, he was going to leave the area and drive back up. They discussed that the **safety zone** was the doublewide trailer. They spoke about the weather and the fact that with the wind and topography, the fire would gain strength and would burn through the canyon, thus causing problems associated with an **area ignition**. He advised [ FS Fire Engine 57 Captain ] that this was not a place they wanted to be and that they could not fight the fire there.

[ CAL Fire Branch II Supvr.] and [ FS Fire Engine 57 Captain ] again discussed the safety zone as well as tactical radio frequencies and [ FS Fire Engine 57 Captain ] plan of action. The plan of action was to leave this area when the fire was close to the bottom of the drainage area and to drive back up and meet with the other San Bernardino NF Engines. He advised [ FS Fire Engine 57 Captain ] of the location of the other Engines and the location of the safety zone several hundred yards away. [ FS Fire Engine 57 Captain ] acknowledged all of the above before he left the area. [ CAL Fire Branch II Supvr. ] did not observe any fire hoses laid out in preparation to fight the fire or other indications that the Engine 57 crew planned on taking a stand at the Octagon structure at 15400 Gorgonio View Road.

[ CAL Fire Branch II Supvr. ] drove back to the doublewide trailer and had face-to-face contact with [ FS Fire Engine 51 Captain ]. He advised [ FS Fire Engine 51 Captain ] of Engine 57's location as a lookout and told him the Engine 57 crew needed to be in the safety zone sooner than later. They both discussed power lines in the area, further **triage** of the safety zone, and **Lookouts, Communications, Escape Routes, and Safety Zone**. He told [ FS Fire Engine 51 Captain ] that after the fire front passed, the crews were to look for persons possibly still in the area. He then left the doublewide trailer and drove back up Gorgonio View Road.

When interviewed, [ FS Fire Engine 51 Captain ] advised that Branch II returned from meeting with Engine 57 and advised him of their location just down the road. They briefly discussed defendability of two other houses in the area and Branch II left.

[ FS Fire Engine 51 Captain ] further advised the engine crews triaged the area around the doublewide. He and [ FS Fire Engine 56 Captain ] went down the road to scout the area and saw Engine 57. He radioed Engine 57 on a tactical radio frequency and advised the doublewide trailer was in a bad spot and they had to **burnout** around it [ FS Fire Engine 57 Captain ] advised over the radio that they were okay and the burnout would not affect them. The Engine crews gathered at the doublewide trailer to brief on the burnout. Prior to burnout operations, he attempted to contact the Structure Protection Group Supervisor on CDF radio channels but there was no answer. He told everyone to go to tactical radio frequency II, but told the Captains to stay on the CDF channel. They proceeded with burnout operations. There were several conversations on the radio between Engines 52, 57, and 56 as they were working.

[ FS Fire Engine 52 Captain ] advised after the fire front passed the Tile house, he contacted [ FS Fire Engine 56 Captain ] and [ FS Fire Engine 57 Captain ] by radio and told them to prepare for the fire to burn in the direction of their positions due to the fire becoming active. He and [ FS Fire Engine 57 Captain ] discussed Engine 57 returning to the Tile house but [ FS Fire Engine 57 Captain ] advised he was in a good position and there was no need for him to come to the Tile house. [ FS Fire Engine 57 Captain ] advised he was going to back burn when the fire got closer. Sometime around 7:00 a.m., an area ignition occurred and within 10 to 15 seconds, the area one quarter mile east and west of [ FS Fire Engine 57 Captain ] position erupted in fire.

[ FS Fire Engine 51 Captain ] advised that [ FS Fire Engine 56 Captain] was the lookout, watching to see which direction the fire was traveling. They started getting spot fires ignited by falling embers inside the area around the doublewide trailer. The fire came through and the smoke was very thick.

They retreated to the fire engines to account for the members of the fire crews. Three crew members retreated to the cab of one of the fire engines but everyone else stayed outside.

[ FS Fire Engine 52 Captain] advised he attempted radio contact with [ FS Fire Engine 57 Captain ] several times but all went unanswered. He then attempted radio contact with [ FS Fire Engine 57 Captain ] crew. All went unanswered. He contacted [ FS Fire Engine 51 Captain ] on the tactical radio frequency and requested he attempt contact with [ FS Fire Engine 57 Captain ]. He tried to proceed in his Engine to [ FS Fire Engine 57 Captain] position. They encountered intense smoke and had to stop. He and [ REDACTED TEXT] an Emergency Medical Technician (EMT), got out of the Engine and began to walk to [ FS Fire Engine 57 Captain ] position. He attempted to contact Branch II on the radio again but was unsuccessful.

[ FS Fire Engine 51 Captain ] stated [ FS Fire Engine 52 Captain ] radioed him and advised he could not contact Engine 57 on the radio. He also tried to contact Engine 57 several times on the radio but did not get an answer. They could hear explosions from

the area where Engine 57 was located. He notified [ FS Fire engine 52 Captain ] of the explosions. They could not see the area where Engine 57 was located because the smoke was too thick. He and [ FS Fire Engine 56 Captain ] made their way toward Engine 57's location. They got to the driveway and saw that Forest Service Firefighter [ REDACTED TEXT] [ FS Fire Engine 57 crew member's ] body was badly burned. He radioed for EMTs and equipment from Engines at the doublewide trailer. He proceeded up the driveway and found [ FS Fire Engine 57 Captain ] . He advised [ FS Fire Engine 52 Captain ] of the situation and told him to get on **Forest Net a**nd request assistance because they could not get through to CDF on the assigned radio channels.

[ FS Fire Engine 52 Captain ] stated [ FS Fire Engine 51 Captain ] radioed him and advised he had found [ a FS Fire Engine 57 crew member ] burned. He attempted to contact Branch again, but did not obtain an answer. He then communicated his emergency traffic over the Forest Service Dispatch Frequency. He arrived at the scene and saw [ a FS Fire Engine 57 crew member ] in the driveway. He then saw [ FS Fire Engine 57 Captain ] north of [ a FS Fire Engine 57 crew member ] location. The engine captains then began to search the area for the other crew members.

The three other crew members of Engine 57, [ REDACTED TEXT], were found deceased. [ a FS Fire Engine 57 crew member] and [ FS Fire Engine 57 Captain ] were taken to the hospital for treatment. [ FS Fire Engine 57 Captain ] succumbed to his injuries that evening. [ a FS Fire Engine 57 crew member ] was removed from life support on October 30, 2006.

A review of autopsy reports from the Riverside County Coroner's office showed three of the Forest Service firefighters died as a result of thermal injury and inhalation of products of combustion. The two additional Forest Service firefighters died as a result of complications of thermal injury.

A review of evidence at the scene indicated no fire shelter deployments were made by any of the Engine 57 crew members.

## SAIT Factual Report Review

During the course of WFIT interviews several inconsistencies were noted between the SAIT Factual Report and our investigation.

### Command Structure

According to the SAIT report, CAL Fire and the Forest Service were in a Unified Command at the time of the burnover. However, WFIT investigation revealed that based on Forest Service protocol, a Unified Command between the Forest Service and CAL Fire did not exist prior to the burnover. A Unified Command is typically initiated when a fire enters or crosses into another agency's jurisdictional boundary. Whether a Unified Command had been established would not have affected whether the fatalities occurred because the Forest Service engine crews were not directly supervised by the Incident Commander (IC). The Forest Service Engine Captains had the ability to make decisions

regarding their strategies and tactics, based upon their experience, training, and observations.

The Unified Command issue was important to Forest Service personnel and therefore is clarified in this WFIT report. A review of the radio transmission audio tape indicates a Unified Command between CAL Fire and Forest Service at 3:10 a.m. This radio transmission of Unified Command was made in error by [ CAL Fire Division Chief/IC ]. Between 3:30 a.m. and 5:00 a.m., a meeting was held with Forest Service personnel and CAL Fire to correct the boundary issues and set trigger points for the Unified Command. Based on Forest Service protocol, there was not a Unified Command between the Forest Service and CAL Fire prior to the burnover. Forest Service personnel were present at the Command Post as agency representatives. The Forest Supervisor was not notified of a Unified Command until after the burnover. [ REDACTED TEXT ], San Bernardino NF Fire Management Officer [REDACTED TEXT] advised he reported to the ICP at approximately 8:30 a.m. and received a briefing on the fire. At approximately 9:00 a.m., Forest Service established Unified Command with CAL Fire. To his knowledge, [ San Bernardino NF FMO ] was the first Forest Service Incident Commander on the Esperanza Fire.

Red Dot Map

The Poppet Flats, Pine Cove and Idyllwild Contingency Study (Exhibit 14), also referred to as the Red Dot Map, was a study done in October 2002. The study was done to show the development and rapid growth in the area, in order to justify additional staffing for fire and rescue. The map was one of many tools used to assist in locating structures and for evacuation and planning purposes. This map was not used during the Esperanza Fire to identify non-defensible structures. The SAIT report indicated that the Red Dot Map was not used for strategic or tactical risk assessments or plans. However, [ CAL Fire Branch II Supvr. ], Esperanza Branch II advised WFIT that he and, [CAL Fire Structure Protection Group Supervisor], both had copies of the Red Dot Map, which they used to develop their teams and to obtain an overview of the area and the number of structures. We do not believe the use or non-use of the Red Dot Map would have affected the outcome of the fatalities.

Radio Traffic

Forest Service personnel conveyed concerns to WFIT that the use of unassigned radio frequencies were unfairly characterized as a contributing factor to the accident. Forest Service personnel informed WFIT that Forest Service engines were communicating on an unassigned Forest Service tactical frequency due to heavy radio traffic on the assigned frequencies. Several attempts to contact [ CAL Fire Branch II Supvr. ] and [ CAL Fire Structure Protection Group Supervisor] concerning burnout operations were made on the assigned radio frequencies by [ FS Fire Engine 52 Captain ] and [ FS Fire Engine 51 Captain ], but were unsuccessful. As a result, all five Forest Service engines and MB-10 established positive communications with one another on an unassigned Forest Service tactical frequency, while still monitoring the assigned command and tactical frequencies. After the burnover, [ FS Fire Engine 52 Captain ] radioed [ CAL Fire Branch II Supvr. ]

twice over the assigned Command Frequency and once over the Assigned Tactical frequency for "Emergency Traffic". A review of CAL Fire audio transcript [ REDACTED TEXT] shows that between 7:52:09 a.m. and 7:54:41a.m., an in-depth conversation was taking place between the IC and Operations on the assigned command frequency. All three calls went unanswered while other radio traffic continued.

Since the assigned command frequency was in use and he could not get through, [ FS Fire Engine 52 Captain ] switched over to an unassigned frequency and raised San Bernardino on the Forest Service Communications radio frequency for emergency assistance. At 7:55:19 a.m., the IC notified Operations of information of two to three burn victims, which came over Forest Service Net primary. The Forest Service use of an unassigned tactical frequency did not violate any procedures since they continued to monitor the assigned command frequency during the fire. WFIT determined that the use of an unassigned tactical frequency had no effect on the outcome of the fatalities.

Based upon witness interviews, WFIT determined that the locations of two crew members of Engine 57 are inaccurate on page 13 of the SAIT Factual Report (Exhibit 1). [ FS Fire Engine 52 Captain ] advised WFIT that [ FS Fire Engine 57 crew member ] was found and treated at the bottom of the driveway at the location currently labeled as "FC TREATMENT LOCATION". [ FS Fire Engine 57 Captain ] was found and treated at the location indicated by the purple arrows.

## INVESTIGATIVE CONCLUSIONS

Page 60 of the SAIT cites an excerpt from the Cooperative Fire Protection Agreement (CFPA) with CAL Fire and states in part, under "Protection Priorities" that each agency will provide for firefighter safety first, followed by priorities of threat to human life and threat to property. Firefighter safety must come first in order to allow for them to save human lives when necessary in a fire. The excerpt also states: "Specifically, the State and Federal Agencies acknowledge the necessity of demonstrating aggressive diligence in protecting structures and improvements from wildfire.

Documentary and testimonial evidence, as well as evidence at the scene, indicate that the Engine 57 Crew members decided to stay at the Octagon House and attempt structure protection. Had the crew of Engine 57 retreated to the safety zone as discussed with [ CAL Fire Branch II Supvr.] , the fatalities may have been prevented.

The results of this investigation will be provided to both the Forest Service and members of Congress as appropriate.

* * * * *

## EXHIBIT LIST

| Exhibit Number | Description | Page Introduced |
|---|---|---|
| 1 | Interagency Coop Fire Agreement | 2 |
| 2 | SAIT Factual Report | 3 |
| 3 | [ REDACTED TEXT] | 3 |
| 4 | [ REDACTED TEXT ] | 4 |
| 5 | [ REDACTED TEXT ] | 4 |
| 6 | [ REDACTED TEXT] | 4 |
| 7 | [ REDACTED TEXT ] | 4 |
| 8 | [ REDACTED TEXT ] | 5 |
| 9 | [ REDACTED TEXT ] | 5 |
| 10 | [ REDACTED TEXT ] | 5 |
| 11 | [ REDACTED TEXT ] | 5 |
| 12 | [ REDACTED TEXT ] | 5 |
| 13 | [ REDACTED TEXT ] | 6 |
| 14 | Red Dot Map | 6 |
| 15 | [ REDACTED TEXT ] | 7 |
| 16 | [ REDACTED TEXT ] | 11 |
| 17 | [ REDACTED TEXT ] | 11 |
| 18 | Power Point Photos-Audio/Video of scene | |

## Glossary and Acronyms

**Agency/Area Coordination Center:** A facility which serves as a central point for one or more agencies to use in processing information and resource requests. It may also serve as a dispatch center for one of the agencies.

**Agency Administrator:** Managing officer of an agency, division thereof, or jurisdiction having statutory responsibility for incident mitigation and management. Examples: NPS Park Superintendent, BIA Agency Superintendent, Forest Service, Forest Supervisor, BLM District Manager, FWS Refuge Manager, State Forest Officer, Fire Chief, Police Chief.

**Air attack:** The deployment of fixed-wing or rotary aircraft on a wildland fire, to drop retardant or extinguishing agents, shuttle and deploy crews and supplies, or perform aerial reconnaissance of the overall fire situation.

**Air tanker:** Fixed-wing aircraft certified by FAA as being capable of transport and delivery of fire retardant solutions.

**Area ignition:** Ignition of several individual fires throughout an area, either simultaneously or in rapid succession, and so spaced that they add to and influence the main body of the fire to produce a hot, fast-spreading fire condition. Also called simultaneous ignition.

**Blow up:** Sudden increase in fireline intensity or rate of spread of a fire sufficient to preclude direct control or to upset existing suppression plans. Often accompanied by violent convection and may have other characteristics of a fire storm.

**Branch:** The organizational level having functional or geographical responsibility for major parts of incident operations. The branch level is organizationally between section and division/group in the operations section, and between section and unit in the logistics section. Branches are identified by roman numerals or by functional name (e.g. service, support).

**Burnout:** Setting fire inside a control line to consume fuel between the edge of the fire and the control line.

**Burnover:** A situation where personnel or equipment are caught in an advancing flame front.

**California Interagency Historical Fire Perimeter Database:** CAL FIRE/FRAP, the USDA Forest Service Region 5 Remote Sensing Lab, the Bureau of Land Management, and the National Park Service are jointly developing the comprehensive fire perimeter GIS layer for public and private lands throughout California.

**Chain:** Unit of measure in land survey, equal to 66 feet (20 M) (80 chains equal 1 mile). Commonly used to report fire perimeters and other fireline distances, this unit is popular in fire management because of its convenience in calculating acreage (e.g., 10 square

chains equal one acre).

**Check-in:** The process whereby resources first report to an incident. Check-in locations include incident command post (ICP), base or camps, staging areas, helibases, or direct to a tactical assignment.

**Chief:** The ICS title for individuals responsible for command of functional sections: Operations, Planning, Logistics, and Finance/Administration.

**Cooperative Fire Protection Agreement:** an agreement between the Bureau of Land Management; National Park Service; U.S. Forest Service, and California Department of Forestry and Fire Protection – version 7/25/01

**Dead Fuels:** Fuels with no living tissue in which moisture content is governed almost entirely by absorption or evaporation of atmospheric moisture (relative humidity and precipitation).

**Delegation of Authority:** A statement provided to the incident commander by the agency executive delegating authority and assigning responsibility. The delegation of authority can include objectives, priorities, expectations, constraints and other considerations or guidelines as needed. Many agencies require written delegation of authority to be given to incident commanders prior to their assuming command on larger incidents.

**Direct Protection Area:** That area for which a particular fire protection organization has the primary responsibility for attacking an uncontrolled fire and for directing the suppression action. Such responsibility may develop through law, contract, or personal interest of the firefighting agent (e.g., a lumber operator). Several agencies or entities may have some basic responsibilities (e.g., private owner) without being known as the fire organization having direct protection responsibility.

**Director:** The ICS title for an individual responsible for supervision of a branch.

**Division:** The ICS organization level between the branch and the task force/strike team. Divisions are used to divide an incident into geographical areas of operation. Divisions are established when the number of resources exceeds the span-of-control of the operations chief.

**Division/Group Supervisor:** The ICS position responsible for supervising equipment and personnel assigned to a division or group. Reports to a Branch Director or Operations Section Chief.

**[fire] Eddy Effect:** A circular-like flow of a fluid (such as air or water) drawing its energy from a flow of much larger scale, and brought about by pressure irregularities as in the downwind (lee) side of a solid obstacle. For example, wind conditions may be erratic and may eddy on the downwind side of large rock outcroppings, buildings, etc.

**Energy Release Component:** The computed total heat release per unit area (British

thermal units per square foot) within the flaming front at the head of a moving fire.

**Entrapment:** 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 compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose. These situations may or may not result in injury. They include "near misses."

**Escape Route:** A preplanned and understood route firefighters take to move to a safety zone or other low-risk area. When escape routes deviate from a defined physical path, they should be clearly marked (flagged).

**Extended Attack:** Suppression activity for a wildfire that has not been contained or controlled by initial attack or contingency forces and for which more firefighting resources are arriving, en route, or being ordered by the initial attack incident commander.

**Extended Attack Incident:** A wildland fire that has not been contained or controlled by initial attack forces and for which more firefighting resources are arriving, en route, or being ordered by the initial attack incident commander. Extended attack implies that the complexity level of the incident will increase beyond the capabilities of initial attack incident command.

**Extreme Fire Behavior:** "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

**Fire:** Rapid oxidation, usually with the evolution of heat and light; heat fuel, oxygen and interaction of the three.

**Fire Behavior:** The manner in which a fire reacts to the influences of fuel, weather, and topography.

**Fire Behavior Prediction System:** A system that uses a set of mathematical equations to predict certain aspects of fire behavior in wildland fuels when provided with data on fuel and environmental conditions.

**Firebrand:** Any source of heat, natural or human made, capable of igniting wildland fuels. Flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels.

**Fire Engine:** see Wildland Fire Engine

**Fire Environment:** The surrounding conditions, influences, and modifying forces of topography, fuel, and weather that determine fire behavior.

**Firefighting Forces:** Qualified firefighters, together with their equipment and material, used to suppress wildland fires.

**Fire Frequency:** A general term referring to the recurrence of fire in a given area over time.

**Fire Front:** The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified, the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

**Fire Interval:** The number of years between two successive fire events for a given area; also referred to as fire-free interval or fire-return interval.

**Fire Pack:** A one-person unit of fire tools, equipment, and supplies prepared in advance for carrying on the back.

**Fire Progression:** The progress of the fire outwards from the point of origin.

**Fire Qualifications:** Computerized interagency summary of fire suppression qualifications of listed personnel. Available information includes fire training record, fire experience record, and physical fitness testing score for each individual.

**Fire Resources:** All personnel and equipment available or potentially available for assignment to incidents.

**Firefighting Resources:** see Fire Resources

**Fire Shelter:** An aluminized tent offering protection by means of reflecting radiant heat and providing a volume of breathable air in a fire entrapment situation. Fire shelters should only be used in life threatening situations, as a last resort.

**Fire Shelter Deployment:** The removing of a fire shelter from its case and using it as protection against fire.

**Fire Weather:** Weather conditions which influence fire ignition, behavior, and suppression.

**Fire Weather Forecast:** A weather prediction specially prepared for use in wildland fire operations and prescribed fire.

**Fire Weather Watch:** A Fire Weather Watch is issued to advise of conditions which could result in extensive wildland fire occurrence or extreme fire behavior, which are expected to develop in the next 12 to 48 hours, but not more than 72 hours. In cases of dry lightning, a Fire Weather Watch may be issued for the next 12 hours. Also see Red Flag Warning

**Flame Height:** The average maximum vertical extension of flames at the leading edge of

the fire front. Occasional flashes that rise above the general level of flames are not considered. This distance is less than the flame length if flames are tilted due to wind or slope.

**Flame Length:** The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity.

**Foehn Wind:** A warm, dry and strong general wind that flows down into the valleys when stable, high pressure air is forced across and then down the lee slopes of a mountain range. The descending air is warmed and dried due to adiabatic compression producing critical fire weather conditions. Locally called by various names such as Santa Ana winds, Devil winds, North winds, Mono winds, etc.

**Forest Net Radio Channel:** a station radio system already in place at the Cabazon Fire Station

**FRAP:** The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program (FRAP). Assesses the amount and extent of California's forests and rangelands, analyzes their conditions and identifies alternative management and policy guidelines.

**Fuel:** Any combustible material, especially petroleum-based products and wildland fuels.

**Fuel Class:** Part of the National Fire Danger Rating System (NFDRS). Group of fuels possessing common characteristics. Dead fuels are grouped according to 1-, 10-, 100-, and 1000-hour timelag, and living fuels are grouped as herbaceous (annual or perennial) or woody.

**Fuel Loading:** The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually dry weight.

**Fuel Model:** Simulated fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

**Fuel Moisture Content:** The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees F.
106

**Fuel Size Class:** A category used to describe the diameter of down dead woody fuels. Fuels within the same size class are assumed to have similar wetting and drying properties, and to preheat and ignite at similar rates during the combustion process.

**General Fire Weather Forecast:** A forecast, issued daily during the regular fire season to resource management agencies, that is intended for planning of daily fire management activities, including daily staffing levels, prevention programs, and initial attack on wildfires. Also called presuppression forecast.

**Geographic Area Coordination Center:** The physical location of an interagency, regional operation center for the effective coordination, mobilization and demobilization of emergency management resources. Listings of geographic coordination centers and their respective geographic coordinating areas can be found within the National Interagency Mobilization Guide, Chapter 20, Section 21.1

**Head Fire:** A fire spreading or set to spread with the wind.

**Holding actions:** All actions taken to stop the spread of fire.

**Incident Commander:** This ICS position is responsible for overall management of the incident and reports to the Agency Administrator for the agency having incident jurisdiction. This position may have one or more deputies assigned from the same agency or from an assisting agency(s).

**Incident Command Post:** Location at which primary command functions are executed. The ICP may be collocated with the incident base or other incident facilities.

**Incident Command System:** A standardized on-scene emergency management concept specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries.

**Incident Management Team:** The incident commander and appropriate general and command staff personnel assigned to an incident.

**Initial attack:** A planned response to a wildfire given the wildfire's potential fire behavior. The objective of initial attack is to stop the spread of the fire and put it out at least cost. An aggressive suppression action consistent with firefighter and public safety and values to be protected.

**Inversion:** Atmospheric inversion. The departure from the usual increase or decrease with altitude of the value of an atmospheric property. In fire management usage, nearly always refers to an increase in temperature with increasing height. Also, the layer through which this departure occurs (also called inversion layer). The lowest altitude at which the departure is found is called the base of the inversion.

**I-Zone:** An area that, in relation to wildland/urban fire, has a set of conditions that provides the opportunity for fire to burn from wildland vegetation to the home/structure ignition zone.

**Jurisdiction:** The range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authority for incident mitigation. Jurisdictional authority at an incident can be political/geographical (e.g., city, county, state or federal boundary lines), or functional (e.g., police department, health department, etc.).

**Line Pack:** see Fire Pack

**Live Fuel Moisture Content:** Ratio of the amount of water to the amount of dry plant material in living plants.

**Live Fuels:** Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

**Lookout:** (1) A person designated to detect and report fires from a vantage point; (2) A location from which fires can be detected and reported; (3) A fire crew member assigned to observe the fire and warn the crew when there is danger of becoming trapped.

**Lookout(s), Communication(s), Escape Route(s), and Safety Zone(s) (LCES):** Elements of a safety system used by fire fighters to routinely assess their current situation with respect to wildland firefighting hazards.

**Management Action Points:** Geographic points on the ground or specific points in time where an escalation or alternative of management actions is warranted. These points are defined and the management actions to be taken are clearly described in an approved Wildland Fire Implementation Plan (WFIP) or Prescribed Fire Plan. Timely implementation of the actions when the fire reaches the action point is generally critical to successful accomplishment of the objectives. Also called Trigger Points.

**MAST:** The Riverside County Mountain Area Safety Taskforce (MAST), San Jacinto Mountains Community, Wildfire Protection Plan – Draft Final (March 2006)

**Mean Sea Level (MSL):** Average height of the surface of the sea for all stages of the tide over a 19-year period. NOTE: when the abbreviation MSL is used in conjunction with a number of feet, it implies altitude above sea level (e.g., 1000 feet MSL).

**Nomex ®:** Trade name for a fire resistant synthetic material used in the manufacturing of flight suits and pants and shirts used by firefighters. Aramid is the generic name.

**Operations Section:** The section responsible for all tactical operations at the incident. Includes branches, divisions and/or groups, task forces, strike teams, single resources and staging areas.

**Operations Section Chief:** This ICS position is responsible for supervising the Operations Section. Reports to the Incident Commander and is a member of the General Staff. This position may have one or more deputies assigned.

**Personal Protective Equipment:** That equipment and clothing required to mitigate the risk of injury from or exposure to hazardous conditions encountered during the performance of duty. PPE includes but is not limited to: fire resistant clothing, hard hat, flight helmets, shroud, goggles, gloves, respirators, hearing protection, chainsaw chaps, and shelter.

**Pre-ignition combustion phase:** Thermal or chemical decomposition of fuel at an

elevated temperature. This is the pre-combustion stage of burning during which distillation and pyrolysis predominate. Heat energy is absorbed by the fuel which, in turn, gives off water vapor and flammable tars, pitches, and gases. These ignite when mixed with oxygen to initiate the flaming combustion phase.

**Probability of Ignition:** The chance that a firebrand will cause an ignition when it lands on receptive fuels.

**Pyrolysis:** The thermal or chemical decomposition of fuel at an elevated temperature. This is the Pre-ignition combustion phase of burning during which heat energy is absorbed by the fuel which, in turn, gives off flammable tars, pitches, and gases.

**Rate of spread:** The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.

**Red Flag Warning:** Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern – normally to occur within 24 hours.

**Relative Humidity:** The ratio of the amount of moisture in the air, to the maximum amount of moisture that air would contain if it were saturated. The ratio of the actual vapor pressure to the saturated vapor pressure.

**Remote Automatic Weather Station:** A GEOS telemetered weather station that transmits hourly observations 24 times per day. These observations are automatically delivered through ASCADS to WIMS.

**Run (Of a Fire):** Rapid advance of the head of a fire, characterized by a marked transition in fireline intensity and rate of spread with respect to that noted before and after the advance.

**Safety Zone:** An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuelbreaks; they are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of blowup in the vicinity.

**Santa Ana Wind:** see Foehn Wind

**Self-Contained Breathing Apparatus (SCBA):** Portable air (not oxygen) tanks with regulators which allow firefighters to breathe while in toxic smoke conditions. Usually

rated for 30 minutes of service. Used primarily on fires involving structures or hazardous materials.

**Situational awareness (SA):** The perception of what the fire is doing and what you are doing in relation to the fire and your goals. It involves an awareness of fire behavior and terrain and the ability to predict where the fire and you will be in the future. This skill depends both on individual perception and sharing it with the rest of the team. Human Factors Workshop - 1995 part 2. SA is knowing and understanding what is going on around you and predicting how things will change, or, in other words, "being coupled to the dynamics of your environment" (Moray, 2004). In the simplest form, SA describes how well someone's perception matches reality. On the fireline, especially under extreme conditions, it's critical for perceptions of the changing fire potential to reflect what's actually happening (Close, 2005). "Mindfulness" is one way of understanding situational awareness – "…coming to an understanding of yourself and your environment, maintaining an on-going scrutiny of expectations, continuous refinement and differentiation of expectations based on newer experiences, and a willingness and capacity to invent new expectations" (Weick and Sutcliffe, 2001).

**Single resource:** An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.

**Sounding (Upper Air Sounding):** A sampling of upper air conditions made by means of instruments and a small radio transmitter on a free balloon. Automatic radio signals originated by action of weather instruments are sent to a ground receiver. These signals are interpreted for use in analyzing and predicting upper air conditions over a wide area of the earth. Weather elements determined at a number of altitude points as the balloon rises are temperature, atmospheric moisture, pressure, wind direction and speed. Similar soundings may be made using fixed balloons or tethersondes.

**Span of Control:** The supervisory ratio of from three-to-seven individuals, with five-to one being established as optimum.

**Spot Fire**: Fire ignited outside the perimeter of the main fire by a firebrand.

**Spot Weather Forecast:** A special forecast issued to fit the time, topography, and weather of a specific incident. These forecasts are issued upon request of the user agency and are more detailed, timely, and specific than zone forecasts. Usually, on-site weather observations or a close, representative observation is required for a forecast to be issued.

**Spotting:** Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.

**Staging Area:** Locations set up at an incident where resources can be placed while awaiting a tactical assignment on a three (3) minute available basis. Staging Areas are managed by the Operations Section.

**Strike Team:** Specified combinations of the same kind and type of resources, with common communications, and a leader.

**Strike Team Leader:** The ICS position responsible for supervising a strike team. Reports to a Division/Group Supervisor or Operations Section Chief. This position may supervise a strike team of engines (STEN), crews (STCR), dozers (STDZ), or tractor/plows (STPL).

**Structural Fire Protection:** The protection of homes or other structures from wildland fire.

**Structural Triage:** Process of inspecting and classifying structures according to their defensibility/indefensibility based on their situation, their construction, and the immediately adjacent fuels.

**Supervisor:** The ICS title for individuals responsible for command of a division or group.

**Suppression:** All the work of extinguishing or confining a fire beginning with its discovery.

**Synoptic:** Literally, at one time. Thus, in meteorological usage, the weather conditions over a large area at a given point in time.

**Synoptic Chart:** In meteorology, any chart or map on which data and analyses are presented that describe the state of the atmosphere over a large area at a given moment in time.

**Task Force:** Any combination of single resources assembled for a particular tactical need, with common communications and a leader. A Task Force may be pre-established and sent to an incident, or formed at an incident.

**Task Force Leader (TFLD):** The ICS position responsible for supervising a task force. Reports to a Division/Group Supervisor or Operations Section Chief.

**Technical Specialists:** Personnel with special skills that can be used anywhere within the ICS organization. These personnel may perform the same duties during an incident that they perform in their everyday job.

**Triage:** see Structure Triage

**Trigger Points:** see Management Action Points

**Type III Fire Engine:** A wildland fire engine that has a 500 gallon capacity, has a 500 at 150 psi (pounds per square inch) gallons per minute capability, and is able to transport a minimum of 3 crew members**.**

**Unified Command:** In ICS, unified command is a unified team effort which allows all agencies with jurisdictional responsibility for the incident, either geographical or functional, to manage an incident by establishing a common set of incident objectives and strategies. This is accomplished without losing or abdicating authority, responsibility, or accountability.

**Weather Information Management System (WIMS):** A centralized weather data processing system at which daily fire danger ratings are produced.

**Wildland:** An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

**Wildland Fire Engine:** A unique vehicle that is specifically designed for the wildland environment. These fire engines are equipped with four wheel drive, rugged suspension and high wheel clearance for mountainous dirt road conditions. Fire engines are placed into category types that are used in the Incident Command System.

**Wildland Fire:** Any non-structure fire that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use, and prescribed fire.

**Wildfire Suppression:** An appropriate management response to wildfire, escaped wildland fire use or prescribed fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire.

**Wildland Urban Interface (WUI):** The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

**Weather Information Management System (WIMS)**: A centralized weather data processing system at which daily fire danger ratings are produced.

**Work/Rest Ratio:** An expression of the amount of rest that is required for each hour an individual is in work status. Current NWCG guidelines require one hour of rest for every two hours in work status.

## Acronyms

**BC** Battalion Chief
**BDF** San Bernardino National Forest
**BLM** Bureau of Land Management
**CAL FIRE** California Department of Forestry and Fire Protection
**CDF** California Department of Forestry and Fire Protection
**CFPA** Cooperative Fire Protection Agreement
**CH/HR** Chains per hour
**DC** Division Chief
**DW** Doublewide
**DPA** Direct Fire Protection Area
**ECC** Emergency Command Center
**ERC** Energy Release Component
**FBAN** Fire Behavior
**FICC** Federal Interagency Communications Center
**FRAP** CAL FIRE's Fire Resource Assessment Program
**FW&S** Fish & Wildlife Services
**GACC** Geographic Area Coordination Center
**IC** Incident Commander
**ICP** Incident Command Post
**ICS** Incident Command System
**I – Zone** Interface zone same as Wildland Urban Interface
**IMT** Incident Management Team
**MAST** Mountain Area Safety Taskforce
**MB-10** March Air Force Base – Brush 10 Fire Engine
**MPH** Miles per Hour
**MSL** Mean Sea Level
**NPS** National Park Service
**NWSFO** National Weather Service Forecast Office
**NWS** National Weather Service
**OIG** Office of Inspector General
**OSHA** Federal Occupational Safety and Health Administration
**PDT** Pacific Daylight Time
**PPE** Personal Protective Equipment
**RAWS** Remote Automatic Weather Station
**RH** Relative Humidity
**RFW** Red flag warning
**ROS** Rate of Spread
**RRU** CAL FIRE Riverside Unit
**RUC** Rapid Update Cycle
**RVC** Riverside County
**SAIT** Serious Accident Investigation Team
**SCBA** Self Contained Breathing Apparatus
**South Ops** California Southern Operations Center