

## OVERVIEW OF THE SPYGLASS ACCIDENT

### Spyglass Ridge Road

#### **Equipment and Personnel**

##### **Ventura County Department (VNC)**

VNC Engine 54 (E-54) is a 2007 American LaFrance Type I fire Engine. E-54 was staffed with a Fire Captain, a Fire Apparatus Engineer and one Firefighter during the burnover.

VNC Engine 30 (E-30) is a 2004 American LaFrance Type I Fire Engine. E-30 was staffed with a Fire Captain, a Fire Apparatus Engineer and one Firefighter.

Ventura County Fire Department (VNC) Engine Strike Team (ST) 1580A was assigned to the Tunnel Structure Group of the Structure Protection Branch. The strike team moved to the Santa Barbara Mission where an additional safety briefing was conducted by the Tunnel Structure Group Supervisor.

At approximately 9:00 am, VNC ST-1580A was positioned in the Spyglass Ridge Road residential area. A tailgate safety briefing was conducted, and the cul-de-sac at the end of Spyglass Ridge Road was identified as the Safety Zone. The fire was located on the ridge above (North of) their location. Fire behavior was of low intensity as the fire backed downhill against the wind, and was burning in a continuous fuel bed of mature chamise.

Throughout the day the engine crews from VNC ST-1580A performed structure preparation; moved combustible items away from the structures; cleaned out rain gutters; and applied aluminum foil to vent openings. VNC E-54 performed these tasks at their assigned location of 1495 Spyglass Ridge Road. Two hose lines were pre-positioned around the main house. VNC E-54 prepositioned two hose lines. A 100' 1 ½" hose was placed along the West side of the main house, and a 100' 1 ¾" was placed at the bottom of the driveway near the Northwest corner of the main house. Both hose lines were connected to a gated wye for connection to the water supply when needed. Three Self-Contained Breathing Apparatus (SCBA) were also prepositioned inside the living room of the main house.

At approximately 2:01 P.M., VNC E-42, located at the adjacent residence to the West, observed and documented a shift in the wind direction and speed. The winds changed from upslope South-Southwest to across the slope from the

Northwest. Fire activity began to increase on the ridge above their position. The Northwest wind continued to increase, and the fire began to move down slope toward Spyglass Ridge Road.

At approximately 3:35 P.M., FC-54 noticed a spot fire above the location of E-54. At the same time, FF-54 pointed out another spot fire near the Southeast corner of the main house. A 200' 1  $\frac{3}{4}$  hose line was then connected from E-54 to the gated wye to charge the pre-positioned hose lines. FC-54 then radioed STEN 1580A and advised that another fire engine was needed. E-30 moved to assist, and backed in next to E-54.

At approximately 4:00 p.m. the fire made extreme advances towards the Spyglass Ridge Road area. Numerous spot fires caused a condition similar to area ignition around 1495 Spyglass Ridge Road. FC-54 told FF-54 to protect the rear of the main structure. After several minutes of firefighting, FC-54 took FF-54 into the structure, entering through the back door on the Southwest side to wait for the fire to pass. While inside the structure, FF-54 removed his web gear and fire shelter and donned his SCBA. FC-54 also donned his SCBA over his web gear and fire shelter.

As the fire intensity increased, FC-54 radioed STEN-1580A and advised that the FC-54 and FF-54 were in the structure and needed immediate aircraft support. The main house began to burn, and FC-54 and FF-54 moved to various rooms in the house as the fire progressed through the structure. FAE-54 had remained at E-54, and used the engine protection line to protect the engine from the advancing fire.

FAE-54 was trying to make radio communication with FC-54 and FF-54 but no contact was made. FAE-54 again radioed FC-54 and advised him E-54 was out of water. As the fire advanced towards E-30 location, E-30 dropped their hose lines, donned their SCBA's, and took refuge in the cab. E-30 was out of water, and FC-30 told FAE-54 to get in the cab of E-30. With concerns for E-54's crew, he reluctantly jumped into the cab of E-30. With FAE-54 now inside the cab with E-30's crew, they attempted to drive down the driveway to safety but were halted by a wall of flames. E-30 waited for a break in the flaming front then drove down the driveway dragging all their hose and nozzles.

With the majority of the main house burning, FF-54 crouched down and removed the fire shelter belonging to FC-54 and prepared to use it as a heat shield while exiting the structure. Before the fire shelter could be fully opened, the sliding glass door shattered, and a rush of heat entered the room. FC-54 made the decision to leave without using the fire shelter.

As FC-54 and FF-54 exited the structure, FC-54 instantly felt his skin burning. FF-54 fell to the ground as FC-54 ran up the driveway towards E-54. FC-54

thought that FF-54 was attempting to deploy the fire shelter at that location. FC-54 yelled at FF-54 to continue to the fire engine. FC-54 arrived at the fire engine and climbed into the back seat on the passenger side still wearing his SCBA. FC-54 could not locate FF-54 and his low air warning device was sounding on his SCBA.

FC-54 radioed to STEN-1580A and told him that he had returned to the location of E-54. STEN-1580A radioed back and told him that he would come and get him. FF-54 then radioed that he was also back at E-54. STEN-1580A arrived at E-54 and the STEN (T)-1580A placed FF-54 and FC-54 into the rear seat of the vehicle. STEN-1580A drove the injured FC-54 and FF-54 to the residence located at 2845 Spyglass Ridge Road where Paramedic Engine 32 initiated treatment. Both victims were assessed by the Paramedic and a medivac helicopter was requested due to their extensive burn injuries, but could not make access due to the conditions.

Branch I arrived, and was preparing to transport FF-54 along with the Paramedic when a paramedic ambulance escorted by a law enforcement officer arrived. The paramedic ambulance with the injured FC-54 and FF-54, assisted by a FF-Paramedic from ME-32, transported both patients to Cottage Hospital for evaluation. They were subsequently flown to Grossman Burn Center. STEN (T)-1580A was transported by Branch I to Santa Barbara County Fire Station #15 for smoke inhalation injuries. A paramedic ambulance transported STEN (T)-1580A to Cottage Hospital for initial evaluation, and was subsequently flown to Grossman Burn Center. FAE-54 sought treatment for smoke inhalation on May 9, 2009. All structures at 1495 Spyglass Ridge Road were destroyed.

### ***INJURIES:***

VNC Strike Team Leader-Trainee (STEN-T) Fire Captain:

- Smoke inhalation

VNC Engine 54 Fire Captain (FC-54):

- 1<sup>st</sup> and 2<sup>nd</sup> degree burns to both ears, sideburn areas, and forehead.
- 1<sup>st</sup> and 2<sup>nd</sup> degree burns to both arms, from the wrist to just above the elbow.
- 1<sup>st</sup> and 2<sup>nd</sup> degree burns to the back of right hand
- 1<sup>st</sup> and 2<sup>nd</sup> degree burns to left calf

VNC Engine 54 Fire Apparatus Engineer (FAE-54)

- Smoke inhalation

VNC Engine 54 Firefighter (FF-54)

- 1<sup>st</sup> and 2<sup>nd</sup> degree burns to forehead

- 1<sup>st</sup> and 2<sup>nd</sup> degree burns to left side of neck
- 2<sup>nd</sup> and 3<sup>rd</sup> degree burns left ear
- 3 ½ inch laceration to right side of neck below jaw
- 2<sup>nd</sup> and 3<sup>rd</sup> degree burns to both shoulders and upper back
- 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> degree burns to triceps area of both arms
- 2<sup>nd</sup> and 3<sup>rd</sup> degree burns to palm of right hand
  - Includes palm side of all fingers

***DAMAGES:***

- VNC E-54 had severe fire damage to the front and left side of the apparatus. The hose bed had major damage from the cribbing and hose that caught fire. The apparatus had a transmission leak along the left frame rail, but was physically driven off the mountain.
- VNC E-30 received minor exterior heat/fire damage.

**SPYGLASS FINDINGS**

**Personnel**

The strike team leader identified and communicated structures as being safety zones.

The area was scouted, structures deemed defensible and a conscious decision was made by the strike team leader and engine company officers to stay and defend structures even with poor escape routes and safety zones.

Lookouts were established and weather was taken throughout the day by members of the strike team.

The incident briefing was attended by the strike team leader and trainee. The entire strike team received briefing which included weather forecast.

### **Access**

Spyglass Ridge Road is a narrow, one lane, paved, dead-end road, without turnouts. It is approximately 14' wide, and native vegetation flanking both sides of the road ending in a cul-de-sac. The driveway to the residence was overgrown.

### **Management**

All company officers had current copies of the Incident Action Plan. The strike team leader attended morning briefing and briefed the strike team.

The Incident Action Plan stated Control Operations for the Mission Structure Group was to "Prep and triage structures which could be threatened by advancing fire."

The Strike Team Leader established a safety zone at the end of the cul-de-sac on Spyglass Ridge Road.

## **CAUSAL FACTOR ANALYSIS**

### **Site Conditions.**

Spyglass Ridge Road and Tunnel Road join, and remain a single lane road creating a potential bottle neck for merging traffic.

1495 Spyglass Ridge Road was also destroyed in the 1962 Coyote Fire.

Narrow driveway overgrown with native vegetation.

Heavy fuel loading at the site which is documented in a video taken at 2:01 p.m. by VNC

### **Human Nature**

Fire behavior intensity was greater than expected.

## **Management**

The Incident Action Plan for May 6, 2009 stated the control objectives, for the Mission Structure Group, as “Prep and triage structures which could be threatened by advancing fire.”

## **Contributing Factors**

The spot forecast provided by NOAA and included in the Incident Action Plan called for Gusty Sundowner Winds to surface at approximately 8:00 PM on the evening of May 5, 2009. This same weather forecast was used in the IAP for May 6, 2009

The Sundowner Winds on May 6, 2009 surfaced and increased earlier than expected. This may have been a factor because the weather discussion in the IAP was for the previous day.

The cul-de-sac at the end of Spyglass was inadequate size to be considered a safety zone for the entire strike team. With flame heights of 100', The Incident Response Pocket Guide recommends a safety zone with a distance separation of 400' from firefighters to flame.

Structure defense tactics were not well identified on the IAP for May 6, 2009. I-Zone tactics and safety watch outs were not identified on the IAP.

The PPE and under garments worn by the injured firefighters were analyzed and a full report is included in this document.

The PPE worn by the injured Fire Captain consisted of single layer nomex over a cotton short sleeve t-shirt, cotton gym shorts with nomex pants. The burns were to both elbows and his left calf in the single layer nomex area.

The PPE worn by the injured Firefighter was double layer for all areas except for a single layer nomex over cotton short sleeve t-shirt; the burns were to both triceps' between the t-shirt line and the wrist.

The wearing of SCBA's may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

The location of the residence as it sits at the top of three drainages, with heavy fuel loading and numerous structures and out buildings caused the fire behavior to greatly increase.

The orientation of the structures and vegetation caused the fire to funnel up the driveway which was also the escape route back to VNC E-54.

The IAP should identify what is to be done for the entire operational period. I.E. "...retreat to safety zone if needed".

## **Recommendations**

Safety zones must be large enough to allow for the fire to pass without the need for additional protection and be able to accommodate all firefighters and apparatus.

Provide for enough reflex time for firefighters to reach the safety zone.

Structures should not be considered safety zones. They are survival zones to only be used as a last resort.

Do not allow the time of year to influence tactical decisions. Base all actions on current, observed, and predicted fire behavior.

Providing structure defense during passage of a flaming front should be considered a frontal assault and is one of the eighteen situations that shout watch out.

Be alert for changing conditions and adjust tactics and LCES measures to meet new levels of risk.

Continued analysis of double layered PPE vs. single layered PPE.

## **Site Conditions**

The house was approximately forty seven years old. It is situated at the top of Spyglass Ridge Road and has three drainages running towards the residence. The house is a single story, single family dwelling with a flat roof, and stucco siding. The native vegetation was cleared to between fifteen and thirty feet with ornamental plants between. A stand of mature Eucalyptus trees is to the south, and the driveway to the residence was overgrown.

The location of the residence as it sits at the top of three drainages, with heavy fuel loading and numerous structures and out buildings caused the fire behavior to greatly increase.

The orientation of the structures and vegetation caused the fire to funnel up the driveway which was also the escape route back to VNC E-54.

LE-100 inspections were not available for the 1495 Spyglass Ridge address for 2008, and inspections for 2009 had not been started.

## **SUPPORTING DATA**

### **Spyglass interview STEN-T**

I made it pretty clear to the Strike Teams that there was a choke point partway down Tunnel Road and escape routes were not a reasonable part of the plan. And just right up front if anything goes wrong on that road your escape route is done and if you were dependent upon it you've got problems. Uh, I also made it pretty clear that I didn't see any really good safe - uh, safety zones by definition in the area. So everyone that was on that assignment realized that they were going to be in the area as the fire went through. (STEN-T Line 164)

### **Escape Routes/Safety Zone**

### **Spyglass interview with STEN**

Did you have a designated lookout for your Strike Team?  
(Question by Gaines Lead Investigator)

I had, uh, two or three of them. I had Engine Company 57, which would be the eastern side of our, uh, area of responsibility. I had 42; which was midway and then 32 and ourselves we were more roving up and down, 32 was the far westside. (STEN Line 166) **Lookouts**

Did you have designated safety zones? (Question by Gaines Lead Investigator)

We, uh, that's a good question, I'm not sure if we ever mentioned the cul-de-sac as a safety area for each engine company or not. (STEN Line 231) **Safety Zone**

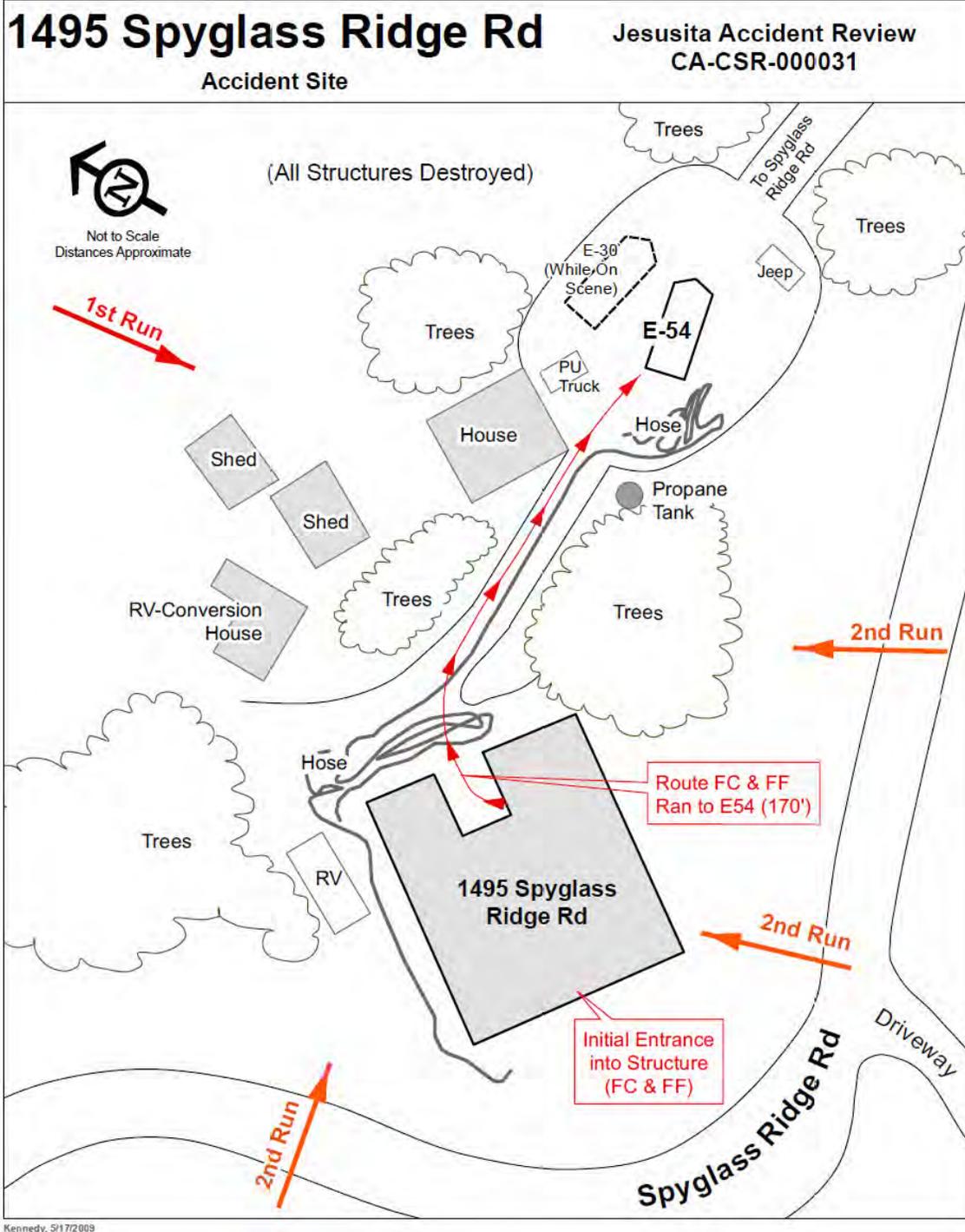
Do you know if that was on the assigned division tac or was it on your Ventura tac? (Question by Gaines Lead Investigator)

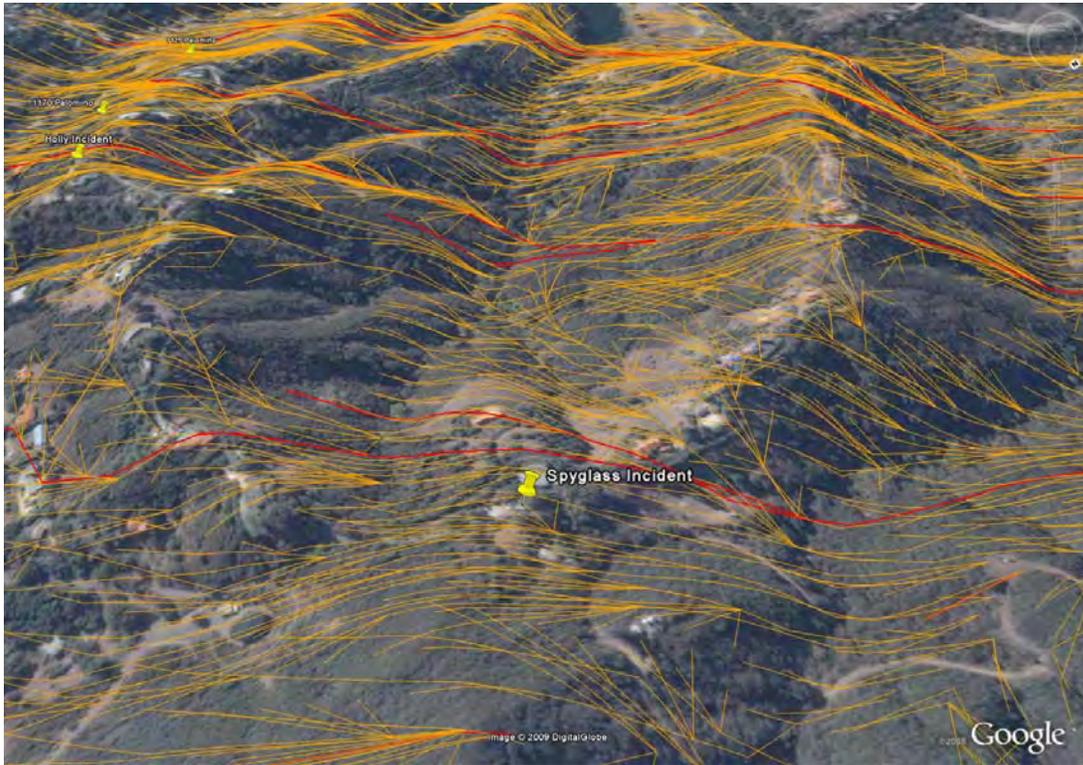
It was on our Ventura tac. We talked about our radio I - I spent a moment on our radio or com plan. Our Type I engines have one King radio per engine. All personnel carry a radio. And, uh, radios that we carry are MT 2000's will not get the frequencies that were being used on this incident. So the captains have the King radio with the incident tac. (STEN Line 409) **Communications**

FF Lopez- using the structure and putting in the SCBA's

Yeah, you know, remember the (Esperanza)," and we were- it was kind of like little small talk like that. And we thought, yeah we don't want, you know, to get into that. And then we kind of all agreed that- that let's, um, why don't we put those BAs in that last house. And that would be, um, that would be- our thought was that would be the last house that would get engaged in the fire.(FF 54 Line 293)

A full PPE report is located in this document which outlines the approx. exposure temperatures, and condition of the burned nomex. (page 69)





Fire path at 1495 Spyglass Ridge Road



1495 Spyglass Ridge Road



1495 Spyglass Ridge Accident site



1495 Spyglass Ridge Road prior to the burn over.

## OVERVIEW OF THE MISSION ACCIDENT

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Lookouts

Communications

Escape Routes

Safety Zones

## **Mission Canyon Road**

### **Equipment and Personnel:**

#### **Los Angeles County Fire Department (LAC)**

LAC Engine 149 (E-149) is a 1995 KME Type I Fire Engine. E-149 was staffed by a Captain, a Fire Apparatus Engineer, and two Firefighters.

On Wednesday May 6, 2009 Los Angeles County Fire Department (LAC) ST-1241A was assigned to the Mission Structure Group. The entire strike team was briefed by STEN-1241A, and staged in the Botanical Gardens in Mission Canyon. STEN-1241A performed a reconnaissance of upper Mission Canyon Road and deployed the engines to protect structures in the northern end of Mission Canyon Road. STEN-1241A provided a safety briefing identifying the structures and a graded lot below 1433 Mission Canyon Road as safety zones. E-149 was assigned the structure located at 1433 Mission Canyon Road, backed into the driveway, and deployed two 1" reel-lines to the entrance of the driveway and front of the house.

At approximately 3:00 PM the wind transitioned from an upslope southerly direction to a down canyon northerly direction and increased substantially. The head fire made a run down the Mission Canyon Drainage toward 1433 Mission Canyon Road. Spot fires developed around the structure. At approximately 3:40 PM conditions deteriorated more than anticipated. At approximately 3:55 PM, due to strong winds, intense heat and poor visibility, FC-149 called for the crew to retreat into the structure. Accountability was conducted and STEN-1241A was notified via radio.

The engine crew entered the structure twice to avoid heat and once to get out of the smoke. One firefighter suffered heat related symptoms and moderate respiratory distress. He was transported to Cottage Hospital by STEN-1241A, kept overnight for observation and released the next day. The engine sustained damage to a hose reel and ladder protectors. The house received minor damage.

#### ***INJURIES:***

LAC Engine 149 Firefighter (FF-149)

- Heat exhaustion and smoke inhalation

#### ***DAMAGE:***

LAC E-149 had the ladder cover with heat/fire damage.

## **MISSION FINDINGS**

## **Personnel**

The strike team leader identified and communicated structures as being safety zones.

The area was scouted, structures deemed defensible and a conscious decision was made by the strike team leader and engine company officers to stay and defend structures even with poor escape routes and safety zones.

Lookouts were established and weather was taken throughout the day by members of the strike team.

The incident briefing was attended by the strike team leader and assistant. The entire strike team received a briefing which included weather forecast.

## **Access**

Mission Canyon Road is a narrow, two lane, paved, dead-end road, without turnouts. It is approximately 18' wide, with many power-lines crossing it and significant amounts of native vegetation flanking both sides of the road

The 1433 Mission Canyon property is accessed from a private, single lane, paved road with an average width of 11 feet. The house is located approximately 710' northwest of Mission Canyon. The private road continues north for another 503' and reconnects with Mission Canyon Road.

## **Management**

All company officers had current copies of the Incident Action Plan. The strike team leader attended morning briefing and briefed the strike team.

The Incident Action Plan stated Control Operations for the Mission Structure Group was to "Prep and triage structures which could be threatened by advancing fire."

Structure defense tactics were not well identified on the IAP for May 6, 2009. I-Zone tactics and safety watch outs were not identified on the IAP.

The structure group supervisor established and communicated a trigger point, at which time all resources were to “pull out” when the fire crossed Tunnel Road. The safety zone was at Foothill and if it was congested resources were to move toward highway 154.

The area of Mission Canyon Road was sized up and scouted by the structure group supervisor and the strike team leader.

## **CAUSAL FACTOR ANALYSIS**

### **Site Conditions.**

Tunnel Road and Mission Canyon join north of Foothill Lane creating a potential bottle neck for merging traffic.

1433 Mission Canyon Road was also destroyed in the 1962 Coyote Fire.

LE-100 inspections were not available for this address and inspections for 2009 had not been started.

### **Human Nature**

Engaging in structure protection with the preconceived idea that “you will not lose structures”, compromises situational awareness.

The fire was described, throughout the day, as “Punking around” and as an innocent looking backing fire by many members of the strike team, including the strike team leader trainee.

Fire behavior intensity was greater then expected.

## **Management**

The structure group supervisor established a trigger point for firefighters to leave the area of Mission Canyon and meet at Foothill Lane and Lacumbre. Leaving the area was not considered a viable option by the strike team leader.

The Incident Action Plan for May 6, 2009 stated the control objectives, for the Mission Structure Group, as "Prep and triage structures which could be threatened by advancing fire."

The IAP should identify what is to be done for the entire operational period. I.E. "...retreat to safety zone if needed".

The wearing of SCBA's may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

## **Contributing Factors**

The spot forecast provided by NOAA and included in the Incident Action Plan called for Gusty Sundowner Winds to surface at approximately 8:00 PM on the evening of May 5, 2009.

The IAP did not identify the winds for May 6, 2009 which was the day of the accident. The Sundowner Winds surfaced and increased earlier then expected.

A graded dirt lot was identified by the members of the strike team as an alternate safety zone. The lot measured approximately 126' by 123'. The flame lengths were described by the engine captain and structure group supervisor to be in excess of 100'. With flame heights of 100', The Incident Response Pocket Guide recommends a safety zone with a distance separation of 400' from firefighters to flame.

Two-1" reel lines were pulled to defend this structure. This would not give adequate water flow to defend a structure or advancing wildland fire. A minimum of 1.5 or 1.75 line should be used for structure protection with a 1.5- 1.75 engine protection line.

The wearing of SCBA's may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

## **Recommendations**

Safety zones must be large enough to allow for the fire to pass without the need for additional protection and be able to accommodate all firefighters and apparatus.

Provide for enough reflex time for firefighters to reach the safety zone based on road conditions, weather, fire behavior and other hazards.

Structures should not be considered safety zones. They are survival zones to only be used as a last resort.

Do not allow the time of year to influence tactical decisions. Base all actions on current, observed and predicted fire behavior.

Providing structure defense during passage of a flaming front should be considered a frontal assault and is one of the eighteen situations that shout watch out.

Be alert for changing conditions and adjust tactics and LCES measures to meet new levels of risk.

Use the appropriate size of attack line according to dept. policy.

Situational awareness was compromised during firefighting operations by taking photographs.

Development of a cell phone/video policy during emergency incident operations.

## **Site Conditions**

The house was approximately forty years old. It is situated on a south face ridgeline. The house is a single story, single family dwelling with a tile roof, boxed eaves and stucco siding. The native vegetation was cleared to between fifteen and thirty feet with ornamental plants between. A stand of mature Eucalyptus trees is to the north and the Mission Canyon drainage immediately to the west.

1433 Mission Canyon Road was also destroyed in the 1962 Coyote Fire.

LE-100 inspections were not available for this address and inspections for 2009 had not been started.

## **Supporting Data**

### **Mission Interview Structure Branch Dorn**

I know that, ah, the group sups in there had some preset stuff and were moving some of the folks. And I understand that, ah, there were a couple of triggers points that were established, ah, especially for the Mission group. Ah, one was if we lost air support. The other was if we had a running fire as opposed to a backing fire. And, ah, it was primarily for the folks, ah, up on the top ends where they were, you know, a little more exposed to the brush area. (Ranger Dorn Line 350) **Trigger point to leave area**

### **Mission Interview STEN Buchanan**

Couldn't really tell if it was an – an improved road or not. And um, but that seemed to be the – the trigger point, that if it slopped over that and stuff and we got a down canyon wind that it'd be time to – to go and stuff. And then we had basically had everything coming here and then around, yeah. So uh, that was kind of the um, discussion was the trigger points was that – was that road there. (Buchanan Line 352) **Trigger point to leave area**

We looked at uh, safety zones. In fact, on that um, on the disc that I gave ya and stuff there's a – one we identified as great safety zone. In fact, that's where the division sup ended up parking himself, in that um, little spot there. (Buchanan Line 447) **Safety Zones**

The main lookout was at – was at that house I was telling you about that had the great deck there. Awesome. Provide us a little opportunity to put our feet up for a bit. (Buchanan Line 474) **Lookout**

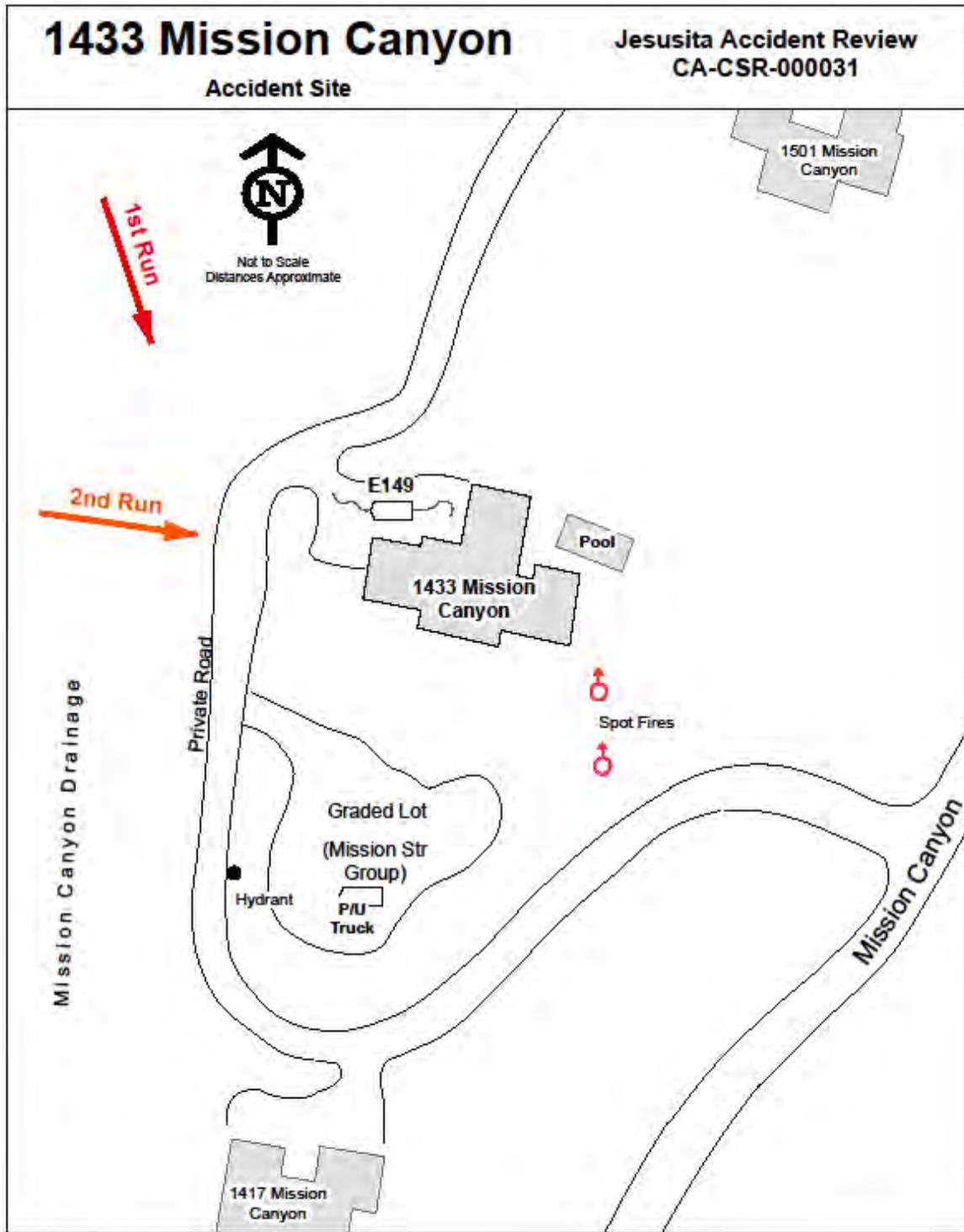
We were working off the NIFC that day? It was either NIFC or um, OES white two or three. And then we were staying with our own internal Tac channel between the companies and Captain. And then the Captain and myself had a radio that we could talk to on our own command channel. (Buchanan Line 535) **Communications**

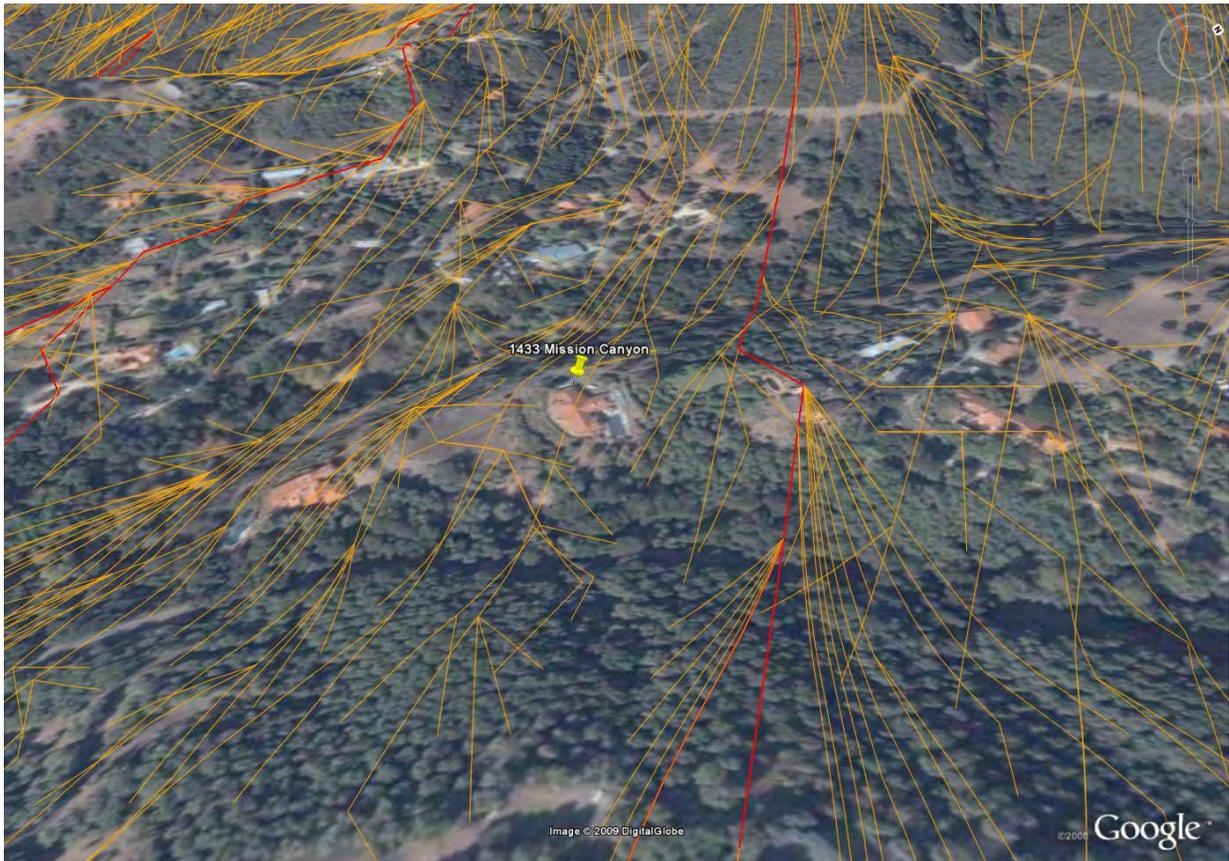
What was supposed to occur when the fire passed that mid-slope road? The (Tunnel) Road there? (Conoscente Investigator) Talking about the trigger point.

Pretty much, according to all the strike team leaders was everybody was supposed to mount up head to (Foothill) Boulevard. And I believe they said let's meet on (Foothill) just west of (Lacumbra)? (Buchanan Line 718) **Trigger point**



Firefighter at 1433 Mission accident site receiving breathing treatment.





Fire path at 1433 Mission Canyon

Fire was coming from the northwest, from top to bottom in the photo



Propane tank venting at the 1433 Mission Canyon accident site



View of 1433 Mission Canyon earlier in the day

## **OVERVIEW OF THE HOLLY ACCIDENT**

### **Holly Road**

#### **Equipment and Personnel:**

##### **Los Angeles City Fire Department (LFD)**

LFD Battalion 18 (B-18) is a 2007 Chevy Suburban. B-18 was staffed with a Battalion Chief and a Firefighter-Staff Assistant.

LFD Utility 33 (U-33) is a 2003 Ford Crew-cab two-wheel-drive pick-up truck. Utility 33 was staffed by a Battalion Chief.

On Wednesday, May 6, 2009, Los Angeles Fire Department (LFD) ST-1001A was assigned to Tunnel Structure Group. STEN-1001A was given a tour of the area by the Tunnel Structure Group Supervisor, and at 11:00 AM returned to brief the crews and give out assignments. Engines were in place at their locations at approximately 11:30 A.M. E-14 was assigned as a roving engine for ST-1001A and was the lookout for Holly Road.

At approximately 2:50 P.M., the winds began to increase and turn down slope. At approximately 3:00 P.M. the winds were periodically gusting at an estimated 40 to 60 miles per hour; according to the crew of E-14 at the top of Holly Road. E14 requested more engines for assistance on Holly Road because of the large amount of unprotected structures and change in weather.

At approximately 3:45 P.M., lead by B-18 and U-33, E-35 drove up Holly Road to the turnaround at 2910. E-35 noticed a spot fire in the north drainage beyond 2911 Holly Road. Shortly after that, the ridge area surrounding Holly Road where E-14, E-35, STEN-1001A, STEN(T)-1001A and their staff assistant was located experienced multiple spot fires, which led to extreme fire behavior resulting in multiple fire fronts moving through the area. During the same time the hydrant system in the area lost water.

STEN-1001A immediately gave the order to take refuge. STEN-1001A, STEN(T)-1001A, FAE-14, one firefighter from E-14, FAE-35, and 5 civilians took refuge in the residence at 2910 Holly Road. FC-35 and two Firefighters from E-35 took refuge in the structure located at 2911 Holly Road as their escape route was blocked. FC-14 and one firefighter from E-14 took refuge in the structure located at 2931 Holly Road. They decided the structure would not withstand the fire, and moved to 2921 Holly Road. They took refuge for approximately 15-20 minutes, and when conditions permitted, made their way to 2910 Holly Road with the other personnel.

The Staff Assistant originally took refuge in a structure at 2850 Holly Road and moved to the garage after the front window gave way and the fire moved into the house. The staff assistant moved to the home at 2910 Holly Road when conditions permitted. Eight fire personnel took refuge at 2910 Holly Road and

remained there with the five civilians for approximately 20 additional minutes. Structure PPE and 5 SCBA's were brought inside 2910 Holly Road as a precaution when the windows cracked due to the fire. The three fire personnel from E-35 took refuge in the home at 2911 for the entire fire siege.

During the entrapment, accountability reports were made via a LFD tactical frequency with all the engine crews involved with STEN-1001A. The Crews of E-14 and E-35 resumed firefighting operations after the fire had passed and located additional water sources. LFD Command Vehicle B-18 and U-33 were parked in the driveway at 2850 Holly Road and were destroyed by fire. STEN-1001A experienced debris in both eyes, and was treated and released at a local hospital. Structures at 2931 Holly Road, 2921 Holly Road, 2850 Holly Road were destroyed.

### **INJURIES:**

Strike Team Leader (STEN) Battalion Chief

- Severe eye irritation

### **DAMAGES:**

- LFD B-18 was completely destroyed.
- LFD Utility 33 was completely destroyed.

## **HOLLY FINDINGS**

### **Personnel**

The area was scouted, structures deemed defensible and a conscious decision was made by the strike team leader and engine company officers to stay and defend structures even with poor escape routes and safety zones.

The area of Tunnel Road was sized up and scouted by the structure group supervisor, strike team leaders, and captains on the engines prior to them engaging.

The crews did not receive any local maps for the area.

The strike team leader did not have an incident tactical radio.

### **Access**

Tunnel Road is a narrow, two lane, dead-end road, without turnouts, surrounded by heavy vegetation with numerous power lines crossing it.

The Holly Road ridge line is accessed by a private, single lane narrow mid-slope dead end driveway without turnouts, surrounded by heavy vegetation and very little clearance. The turnaround at 2910 Holly Road feeds three driveways and approximately 7 homes.

### **Management**

The strike team leader allowed crews to have lawn chairs out and have gear off until he told them to “snuggle it up” (Meaning get ready)

The strike team leader communicated to his crews they were to find a defensible structure and prep the structure because they had no plan to leave the area due to narrow roads and limited access.

Engine 14 was established as a roving lookout on Holly Road and then became stationary when the Type 3 Strike Team left the area.

Engine 35 moved up to Holly Road, an area where they were unfamiliar with terrain, strategy, and tactics. The safety zones and escape routes were not identified. Shortly after their arrival they were overrun by fire and had to take refuge in 2911 Holly Road. The engineer off E-35 was cut off from his crew and had to take refuge in 2910 Holly Road.

The Incident Action Plan stated Control Operations for the Tunnel Structure Group was “Prep and triage structures which could be threatened by advancing fire.”

No trigger point or safety zone was established or communicated by the Tunnel Structure Group or by the strike team leader.

## **CAUSAL FACTOR ANALYSIS**

### **Human Nature**

The fire was described, throughout the day, as “a lazy fire”, which was not doing anything by the lookout, E-14 (Line 135).

### **Site Conditions**

Holly Road is a single lane, paved, dead-end ridge top road, approximately 18’ wide. Significant amounts of native vegetation flanked both sides of the road.

### **Management**

Engine 35 moved up to Holly Road, an area where they were unfamiliar with terrain, strategy, and tactics. The safety zones and escape routes were not identified. Shortly after their arrival they were overrun by fire and had to take refuge in 2911 Holly Road. The engineer off E-35 was cut off from his crew and had to take refuge in 2910 Holly Road.

No trigger points were established for firefighters to leave the area.

The strike team leader’s and structure protection group leader’s mindset was to stay and defend.

The Incident Action Plan for May 6, 2009 stated the control objectives, for the Mission Structure Group, as “Prep and triage structures which could be threatened by advancing fire.”

The IAP should identify what is to be done for the entire operational period. I.E. “...retreat to safety zone if needed”.

The wearing of SCBA’s may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

## **Contributing Factors**

The spot forecast provided by NOAA and included in the Incident Action Plan called for Gusty Sundowner Winds to surface at approximately 8:00 PM on the evening of May 5, 2009.

The IAP did not identify the winds for May 6, 2009 which was the day of the accident. The Sundowner Winds surfaced and increased earlier then expected.

The wearing of SCBA's may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

## **Recommendations**

The IAP should identify what is to be done for the entire operational period. I.E. "...retreat to safety zone if needed".

Provide for enough reflex time for firefighters to reach the safety zone based on road conditions, weather, fire behavior and other hazards.

Safety zones must be identified and be large enough to allow for the fire to pass without the need for additional protection and be able to accommodate all firefighters and apparatus.

Structures should not be considered safety zones. They are survival zones to only be used as a last resort.

Do not allow the time of year to influence tactical decisions. Base all actions on current, observed and predicted fire behavior.

Providing structure defense during passage of a flaming front should be considered a frontal assault and is one of the eighteen situations that shout watch out.

## **Site Conditions**

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The house at 2910 Holly Road was approximately ten years old. It is situated on a north - south aligned ridgeline. The house is on the east side of the ridge. The house is a two story, single family dwelling with a tile roof, stucco siding and had no eaves. The native vegetation was cleared 30 feet on the east with ornamental plants between. Holly Road separated the home from the chimney canyon to the west.

The house at 2911 Holly Road was approximately 30 years old. It is situated on a north – south aligned ridge. The house is on the west side of the ridge on a spur ridge. The house is a single story family dwelling, with rolled roofing, wooden sided and exposed to the slope. The native vegetation was cleared 30-100 feet around the structure.

The house at 2850 Holly Road was destroyed by the advancing flaming front. The residence is located at the top of a major drainage and was exposed to direct flame contact. This was the original refuge site prior to it burning down and the firefighters ran to the residence at 2910 Holly road.

The construction type and age of the residence was similar to the residence at 2910 Holly Road.

## **Supporting Data**

### **Holly Interview STEN 1101A Lydecker**

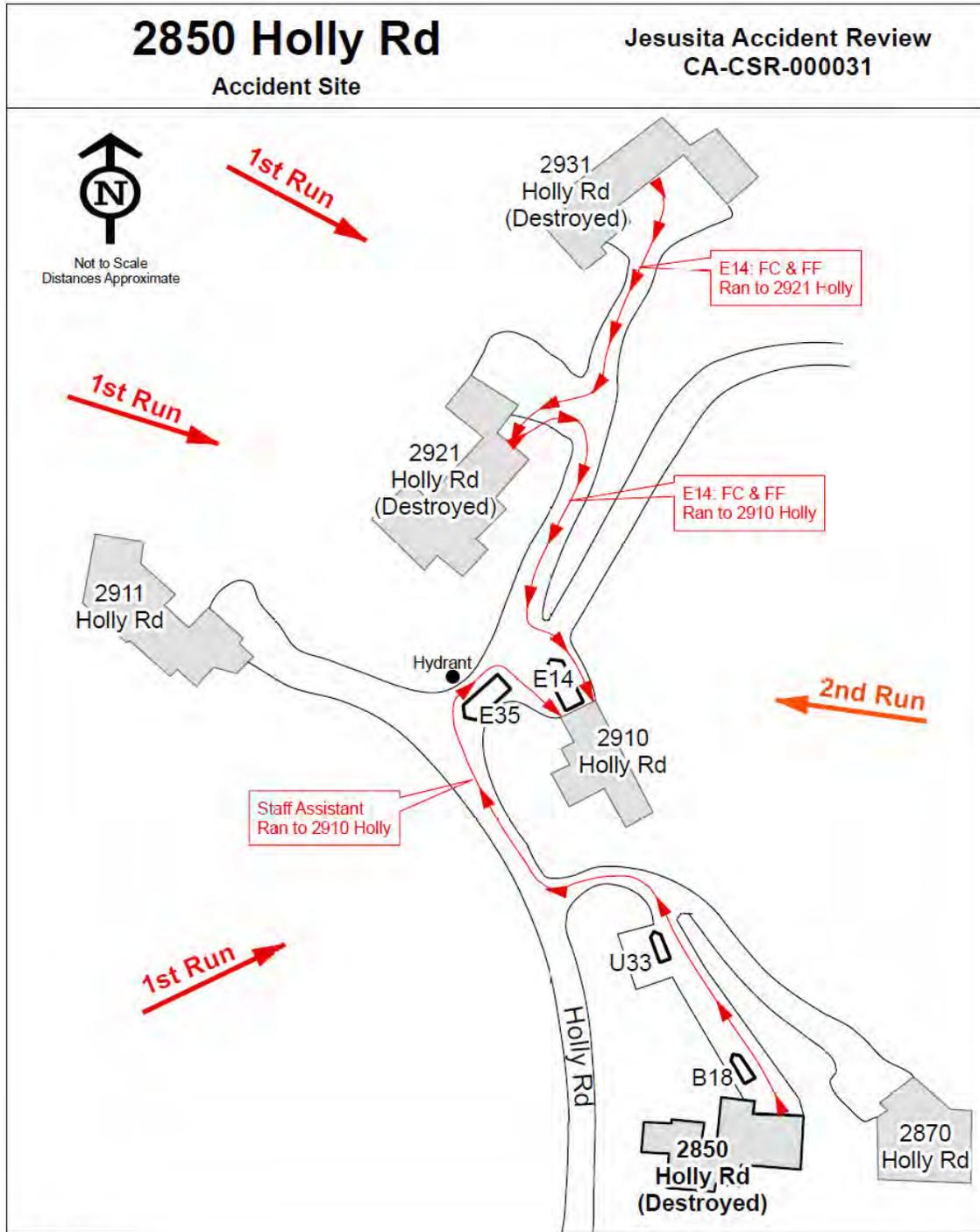
Couple of the guys had their chairs out. You know, I told them, I said, “You can take your brush jackets off.”

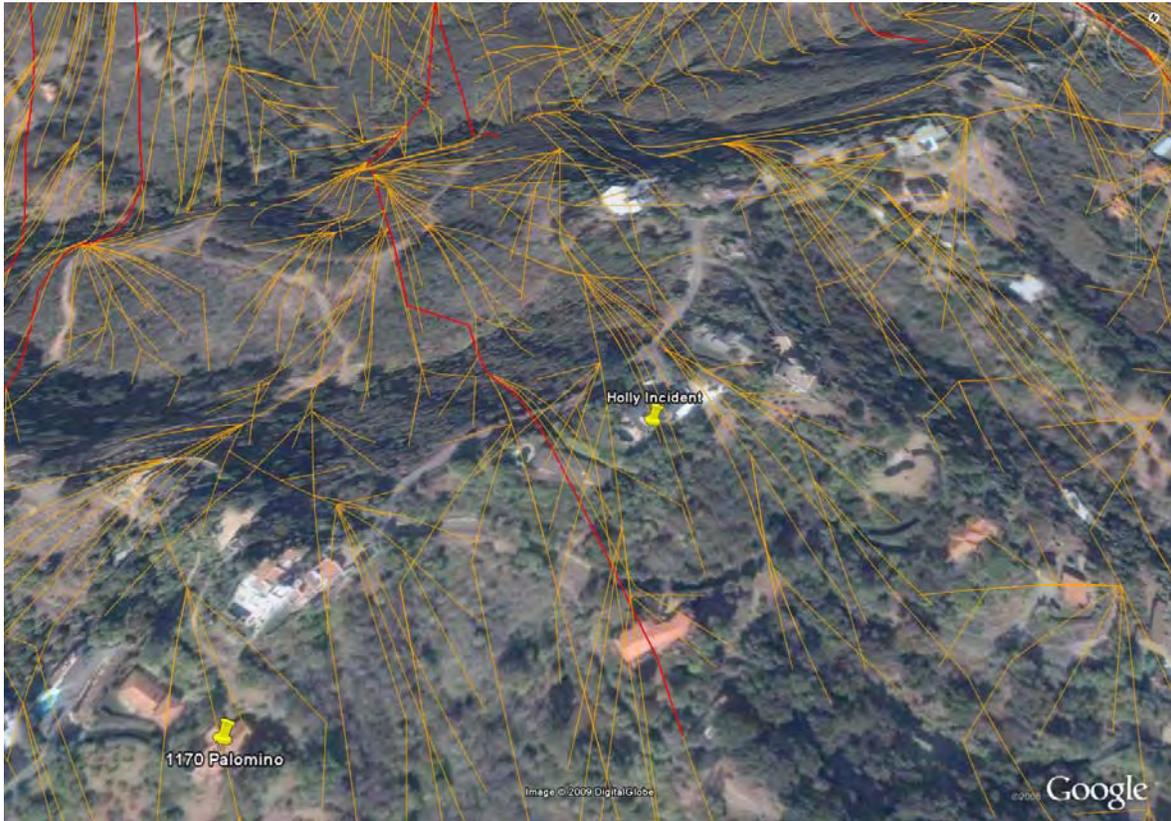
You know, earlier in the day, “Stay cool, keep them close, you know, but you can stay-stay hydrated and all that stuff, but I’ll let you cool off for a little bit.” At some point I got on the radio, I told everybody to snuggle it up.(Lydecker Line 800)

### **Holly interview with Ullrich dealing with the public trying to evacuate too late**

And the man comes up and he goes, “No we leave now.” I said, “You cannot leave.” And, uh, I said, “You - you have to stay here. You’ve had two days to evacuate. You - you’re staying.” And he said, “No - no, we can make it. We’re leaving now.” I said, “No, you’re not.” “Get out of the way.” And he tells her to drive - he says, “Drive...(Ullrich Line 575) **IRPG Pg #11 Wildland –Urban watch-outs**

That - that's a sick feeling. Uh, we started to realize, uh, you know, what? We might not make it out of here. I mean, we talked about you guys, we're - we're in a bad spot. ...(Ullrich Line 865) **Taking refuge in a residence, Wildland/Urban Interface #E**





Fire path at Holly accident site.

Fire came from the northwest, from top to bottom in the photo.



LFD Battalion 18 vehicle at 2850 Holly Road (STEN 1001A)



LFD Utility 33 at 2850 Holly Road. (STEN-T 1001A)

## OVERVIEW OF THE TUNNEL RD “E & G” ACCIDENT

### Tunnel Road

#### **Equipment and Personnel:**

##### **Santa Paula City Fire Department (SPA)**

SPA Engine 81 (E-81) is a 2001 Ferrara Type I Fire Engine. E-81 was staffed by a Captain, a Fire Apparatus Engineer, and one Firefighter.

##### **Ventura City Fire Department (VEN)**

VEN Medic Engine 5 (ME-5) is a 2000 Seagrave Type I Fire Engine. ME-5 was staffed by a Captain, a Fire Apparatus Engineer and two Firefighters.

On May 6 at approximately 7:30 AM, Ventura County Operational Area (XVE) ST-1550A was assigned to the Tunnel Structure Group. Santa Paula City Engine E-81 performed structure triage at 1165 Tunnel Road #E. At approximately 4:00 P.M., E-81 experienced heavy spotting from the East and West. FC-81 gave the order to apply Class A foam directly to E-81 for protection from the extreme heat. FC-81 directed self contained breathing apparatus from E-81 to be placed by the side entrance of 1165 Tunnel Road #E. After 2 to 3 minutes FC-81 gave the order to take refuge in the residence. After entering the residence the decision was made to move E-81. The FAE-81 and FF-81 each donned a SCBA and repositioned E-81. When the fire front passed the crew from E-81 met with Ventura City Engine ME-5, and XVE STEN-1550A to debrief. No firefighters were injured.

The engine received minor damage to the left rear upper equipment compartment while being repositioned. The crew from E-81 returned to firefighting duties and completed their shift. No injuries resulted. Minor Damage occurred to the wall at 1165 Tunnel Road #E from the contact with E81.

Medic Engine 5 (ME-5), also part of XVE ST-1550A, performed structure triage at 1165 Tunnel Road #G. At approximately 4:00 P.M., ME-5 also experienced numerous spot fires from all directions. FC-5 gave the order to don SCBA, and continue firefighting. After the crew went through one and a half bottles of air, the crew from ME-5 experienced zero visibility and extreme heat. FC-5 gave the order to take refuge in ME-5. When inside ME-5, FC-5 gave the order to remove fire shelters from their cases. FC-5 opened his fire shelter and placed it on the dash board of the engine to deploy as a heat shield if needed. Radio contact was made with XVE STEN-1550A, and told of their situation. FC-5 gave the order to

move to the location of E-81 where they were briefed by XVE STEN-1550A. All firefighters were uninjured and resumed their firefighting duties.

Out buildings were destroyed at 1165 Tunnel Road #G. The main structure received minor damage. All structures were destroyed at 1165 Tunnel Road # A and 1255 Tunnel Road.

***INJUIRES:***

None Reported

***DAMAGE:***

SPA E-81 received damage to the left rear upper compartment door and the body had scraping damage consistent with striking a concrete wall. The chrome bezel around the left rear stop, turn signal and back up light assemblies had scrape damage.

**TUNNEL FINDINGS**

Personnel

The area was scouted, structures deemed defendable and a conscious decision was made by the strike team leader and engine company officers to stay and defend structures even with poor escape routes and safety zones.

The area of Tunnel Road was sized up and scouted by the structure group supervisor, strike team leaders, and captains on the engines prior to them engaging.

The crews did not receive any local maps for the area.

Equipment

The engine did not have an ember screen installed in the motor air intake system.

### Access

Tunnel Road is a 18 foot wide, two lane, dead-end road, without turnouts, surrounded by heavy vegetation with numerous power lines crossing it.

1165 Tunnel is a private, single lane narrow dead end driveway without turnouts, surrounded by heavy vegetation and very little clearance. Address numbers E and G are at the end of 1165 Tunnel.

### Management

The strike team leader communicated to his crews they were to find a defensible structure and prep the structures.

ME-5 prepped the structure at number #G and E-81 prepped the structure at number #E. The safety zones and escape routes were not identified.

Approximately 5 hours after their arrival both Engine were over run by fire. ME-5's crew had to don breathing apparatus due to intense and fire, they also removed their Fire Shelters from their cases to use as heat shields in ME-5's windows, if needed.

E-81's crew took refuge in the Structure at number E, because of intense heat and fire. The Engineer and Firefighter had to don breathing apparatus to exit the structure to move E-81 to a location away from the intense heat.

The IAP should identify what is to be done for the entire operational period. I.E. "...retreat to safety zone if needed".

The wearing of SCBA's may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

A trigger point to move to a safety zone was not established or communicated by the Tunnel Structure Group or by the strike team leader.

## **CAUSAL FACTOR ANALYSIS**

### Human Nature

The fire was described, throughout the day, as not doing much.

### Site Conditions

Tunnel is a single lane, paved, dead-end road, approximately 18' wide. Significant amounts of native vegetation flanked both sides of the road.

### Management

ME-5 and E-81 were not familiar with the fire area and, no trigger points were established for firefighters to leave the area.

The strike team leader's and structure protection group leader's mindset was to stay and defend.

The Incident Action Plan for May 6, 2009 stated the control objectives, for the Mission Structure Group, as "Prep and triage structures which could be threatened by advancing fire."

The wearing of SCBA's may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

Do not allow the time of year to influence tactical decisions. Base all actions on current, observed and predicted fire behavior.

## **Contributing Factors**

The 2008 LE-100 inspections for this property show that it failed. 2009 LE-100 inspections had not been started.

The spot forecast provided by NOAA and included in the Incident Action Plan called for Gusty Sundowner Winds to surface at approximately 8:00 PM on the evening of May 5, 2009. This same weather forecast was used in the IAP for May 6, 2009

The Sundowner Winds on May 6, 2009 surfaced and increased earlier than expected. This may have been a factor because the weather discussion in the IAP was for the previous day.

## **Recommendations**

The IAP should identify what is to be done for the entire operational period. I.E. "...retreat to safety zone if needed".

Safety zones must be identified and be large enough to allow for the fire to pass without the need for additional protection and be able to accommodate all firefighters and apparatus.

Structures should not be considered safety zones. They are survival zones to only be used as a last resort.

Do not allow the time of year to influence tactical decisions. Base all actions on current and predicted fire behavior.

Providing structure defense during passage of a flaming front should be considered a frontal assault and is one of the eighteen situations that shout watch out.

All engines should be inspected annually to make sure they have an ember screen to prevent the air filter from burning.

## **Site Conditions**

The house at 1165 Tunnel #G, the house is a two story, single family dwelling with a tile roof and stucco siding. The native vegetation was cleared 30 feet on the east with ornamental plants between.

The house at 1165 Tunnel # E, the house is a single story family Spanish style dwelling, with tile roofing, stucco sided. The native vegetation was cleared 30-100 feet around the structure. This residence was not destroyed.

The residence at 1165 Tunnel is a spur ridge that runs east to west. E and G are at the east end of 1165 Tunnel.

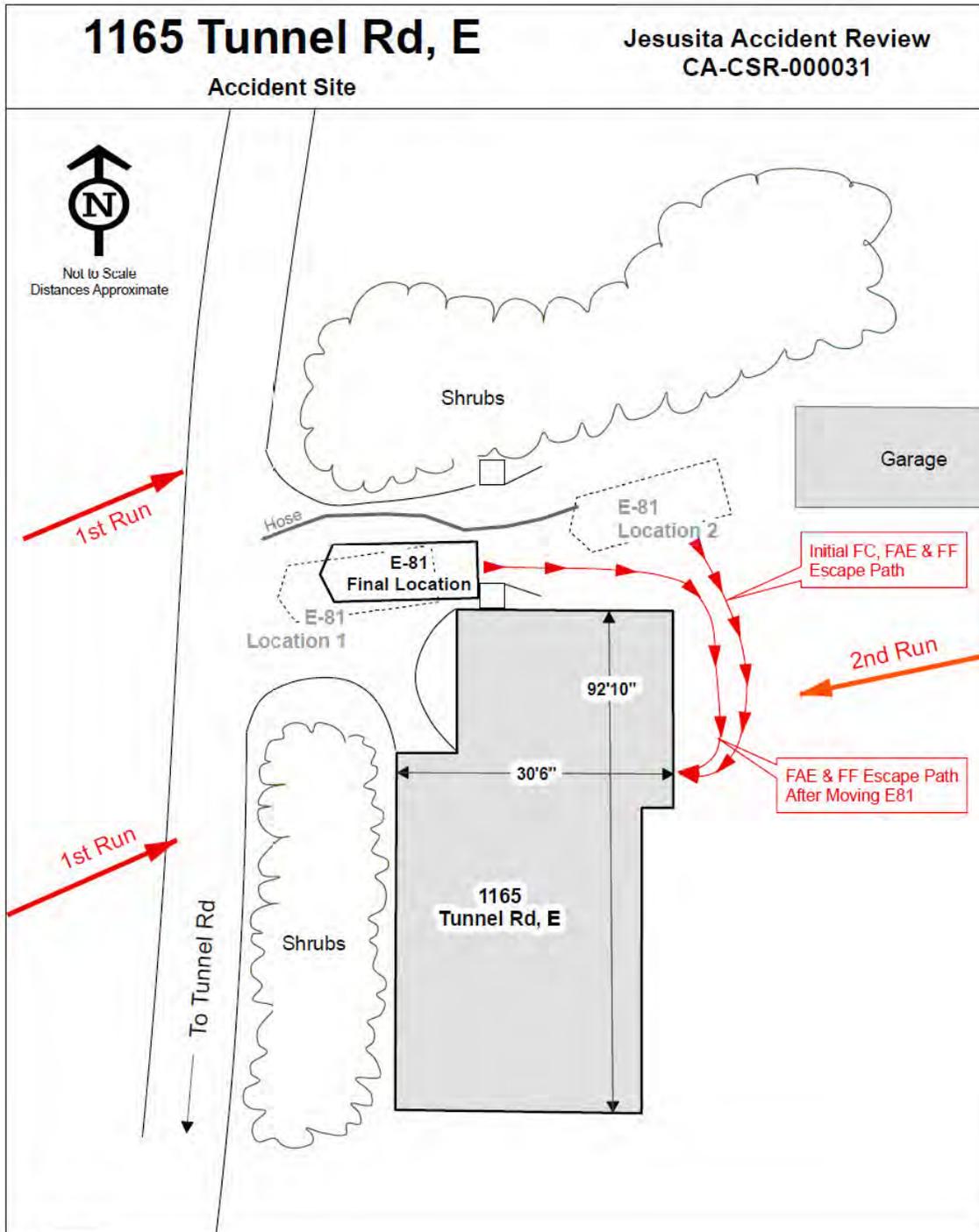
The residence at 1165 Tunnel #G failed its LE-100 inspections in 2008. The inspection program for 2009 had not started. This residence was not destroyed during the fire but the residences at 1255 and 1165 #A Tunnel were destroyed.



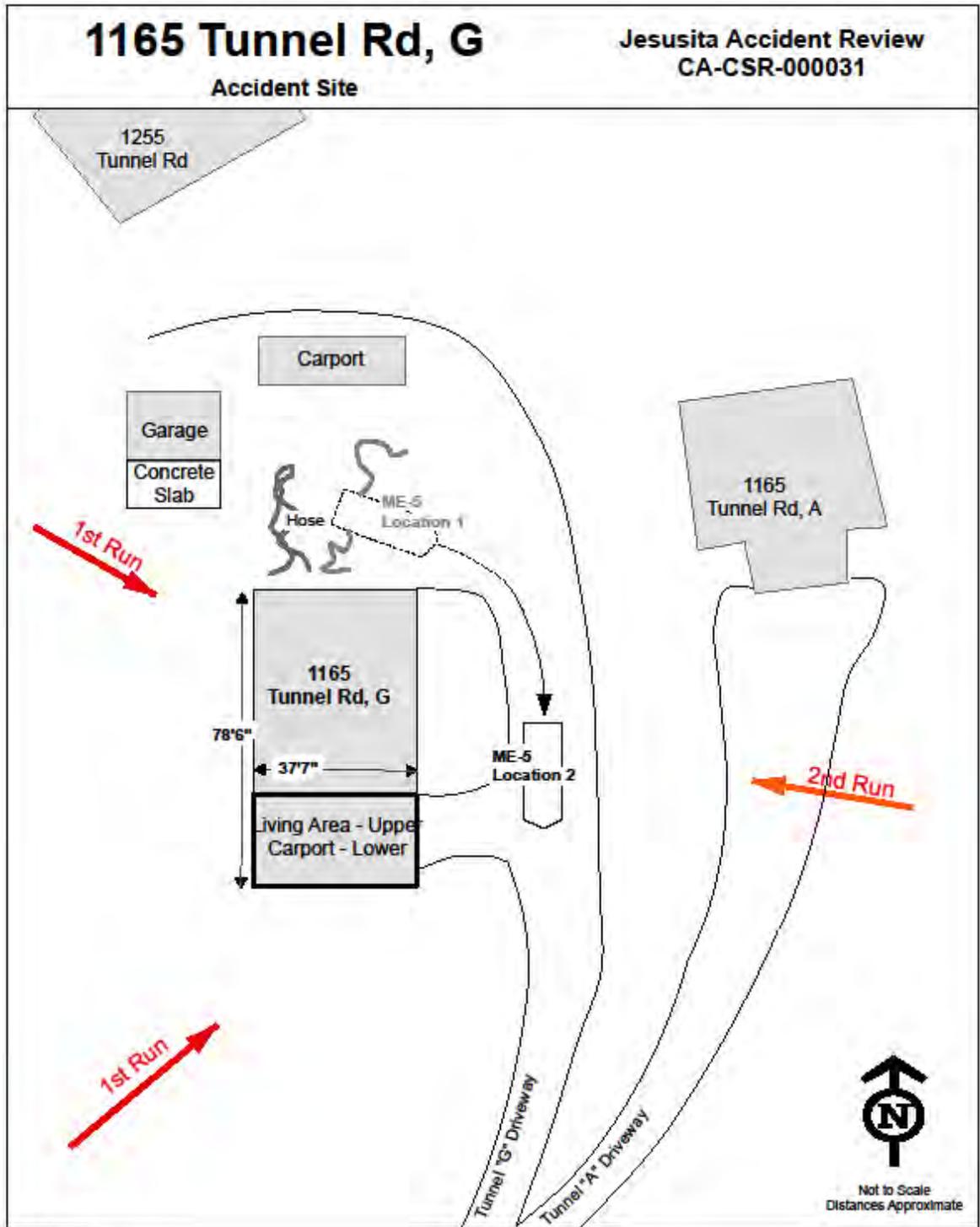
1165 Tunnel #G all outbuildings were destroyed.



Santa Paula City E-81, damage from hitting block column.



Kennedy, 5/17/2009





Fires path at 1165 Tunnel # E & #G

The fire came from the northwest which would be from left to right on this photo.

## OVERVIEW OF THE PALOMINO ACCIDENT

### 1125 Palomino Road

#### **Equipment and Personnel:**

##### **Los Angeles County Fire Department (LAC)**

LAC Engine 70 (E-70) is a 2007 KME Type I Fire Engine. E-70 was staffed by a Captain, a Fire Apparatus Engineer, and two Firefighters

On May 6, 2009, Los Angeles Fire Department (LFD) ST 1002A was assigned to protect structures on Palomino Road. After receiving the morning briefing and instructions from LFD STEN-1002A, the strike team arrived on Palomino Road at approximately 10:00 AM.

LFD STEN-1002A scouted the area, developed a plan and began to prepare the homes for the fire front. LFD E-98 was positioned facing the direction of egress along Palomino Road directly in front of 1121 Palomino Road. Firefighters deployed two hose lines. One line was identified to protect the home at 1125 Palomino Road and the other line would be used to protect the structure at 1121 Palomino Road. Firefighters removed combustible items away from the structures and established a water source from a supply line pumped from another engine hooked to a hydrant located approximately 300 feet down the road.

LAC ST-1240A was off shift from the previous night and called back to duty from the Incident Base when additional resources were requested. LAC ST-1240A was then assigned to Tunnel Structure Group and arrived at Palomino Road at approximately 3:25 PM. After receiving instructions from LAC STEN -1240A, LAC E-125 and LAC E-70 drove up the lower spur of Palomino Road to protect structures. They were unaware of other engines located on Palomino Road.

Both LAC E-125 and LAC E-70 drove up lower Palomino Road and observed spot fires in the drainage below as they drove around the bend. LAC E-125 went to the end of Palomino Road and backed into the driveway of 1125 Palomino Road, LAC E-70 drove past LAC E-125 and stopped to allow LAC E-125 to clear the driveway. LAC E-125 pulled out of the driveway and proceeded back down Palomino Road.

LAC E-70 backed into the driveway at 1125 Palomino Road in an attempt to turn around. The fire activity increased and LAC E-70 was unable to make the turn and stopped. Firefighters attempted to deploy hose lines to protect their engine. LFD FC-98 observed LAC E-70's position getting hit by the fire front. LFD E-98 and his two firefighters placed E-98's second hose line into operation to protect LAC E-70. Conditions deteriorated, and LFD FC-98 gave instructions for everyone to take refuge in the structure located at 1125 Palomino Road. LAC

FAC-98 remained at the engine while the remainder of the crew sought refuge. The crew from LAC E-70, along with two firefighters from LFD E-98, took refuge in the garage. LFD FC-98 took shelter in the main part of the structure. LFD FC-98 directed the crews to move from the garage to his location farther into the house

LAC FC-70 and LFD FC-98 contacted their respective STEN's by radio as to having had to shelter in the structure. A few minutes later LAC STEN-1240A radioed LAC FC-70 that he was outside the building and it was safe to come out. The crew from LFD E-98 went back to their engine and continued fighting fire. The crew from LAC E-70 returned to the engine and found it had stopped running. The engine was re-started driven to base camp, and was placed out of service in Ground Support.

LAC FAE-70 suffered heat exhaustion, was transported to the hospital via ambulance, treated and released. LAC E-70 received moderate damage. The structure at 1125 Palomino Road was destroyed.

***INJURIES:***

- Engine 70 Fire Apparatus Engineer (FAE-70)
  - Heat exhaustion

***DAMAGE:***

LAC E-70 had moderate fire damage to the complete front side of the vehicle, including cracks to both front windshields and the cab mounted light bar destroyed. Left side tires were damaged. The motor had stalled on the incident, and the crew discovered the air cleaner had burned.

**PALOMINO FINDINGS**

Personnel

The area was scouted by LFD STEN-1002A, structures deemed defensible and a conscious decision was made by the strike team leader and engine company officers to stay and defend structures even with poor escape routes and safety zones.

LAC Strike team 1240A was deployed from base camp while off shift and did not have the benefit of a formal briefing and was unfamiliar with the area.

LAC E-125, 70, and 99 arrived on Palomino road as spot fires occurred in the area of Palomino Road.

LAC E-70 was caught by the fire front, and not able to turn the engine around and egress to a safe location. This forced the crew of LFD E-98 to assist them, and take shelter in the structure at 1125 Palomino.

The extreme fire behavior caused LAC E-70 operator to flee into the structure with partial PPE (no safety helmet, gloves, or web gear, "fire shelter").

LAC E-70 sustained significant surface damage to the front end.

LAC E-70 had just arrived in the Palomino area when the fire front hit.

### **Equipment**

LAC E-70 was equipped with an ember screen on the motor air intake. During the firefight, a burning ember went into the front air intake, burning the air filter which caused the motor to stall.

### **Access**

Palomino Road is a narrow, steep one lane, dead-end road, without turnouts, surrounded by open grassland with scattered heavy brush and wood land.

The 1125 Palomino property is accessed from a private, single lane, paved road with an average width of 9 feet. The house is located mid slope at the end of a paved road; however a section of dirt road extends an additional 30 feet past the structure.

### **Management**

LAC strike team leader or company officers did not have current copies of the Incident Action Plan due to being off shift when re-assigned.

The Incident Action Plan stated Control Operations for the Mission Structure Group was "Prep and triage structures which could be threatened by advancing fire."

Even though the structure group supervisor established and communicated a decision point, the arriving engines may not have been aware of the established decision point to "pull out" because they were off shift.

### **CAUSAL FACTOR ANALYSIS**

### **Site Conditions.**

Palomino Road is a one lane, paved, dead-end road, approximately 9 feet wide. Two sections of Palomino Road exist (odd number homes are located on a spur road which forks to the left while even numbers are on the section off Palomino which continues straight. Significant amounts of native vegetation flanked both sides of the road.

### **Human Nature**

Engaging in structure protection with the preconceived idea that “you will not lose structures”, compromises situational awareness.

Several fire personnel from LFD E-98 who were assigned to Palomino Road noted the wind increase. Personnel felt they were prepared for the fire front to bump them.

Engine personnel were not feeling one hundred percent (engine operator assigned to LAC engine 70 reported he may have food poisoning to supervisor; however felt he could work through shift).

The Incident Action Plan stated Control Operations for the Mission Structure Group was to “Prep and triage structures which could be threatened by advancing fire.”

### **Management**

Even though the structure group supervisor established and communicated a decision point, the arriving engines may not have been aware of the established decision point to “pull out” because they were off shift.

The Incident Action Plan for May 6, 2009 stated the control objectives, for the Mission Structure Group, as “Prep and triage structures which could be threatened by advancing fire.”

The IAP should identify what is to be done for the entire operational period. I.E. “...retreat to safety zone if needed”.

The wearing of SCBA's may have contributed to the firefighters using the residence as a refuge and over extending themselves instead of leaving for the safety zone.

## **Contributing Factors**

The spot forecast provided by NOAA and included in the Incident Action Plan called for Gusty Sundowner Winds to surface at approximately 8:00 PM on the evening of May 5, 2009.

The IAP did not identify the winds for May 6, 2009 which was the day of the accident. The Sundowner Winds surfaced and increased earlier than expected.

The structure located at 1121 Palomino was identified as the safety zone. The fire front was described as intense and blowing. The Incident Response Pocket Guide recommends a safety zone with a distance separation of 400' from firefighters to flame.

LAC E-70 was over committed with hose and could not move. The engine was not mobile.

## **Site Conditions**

The house is wood stud construction with stucco exterior approximately twenty years old. It is situated on a south west facing ridgeline. The house is a single story, single family dwelling with open wood eaves. The native vegetation was not cleared and encroached onto the structure. Ornamental plants were scattered in between.

### **LE-100 Notice of defensible space inspection.**

A review of the 2008 LE-100 inspections noted that 1125 Palomino Road failed their clearance inspection.

## **Recommendations**

Crews coming from off shift need to be briefed of the current situation.

Safety zones must be large enough to allow for the fire to pass without the need for additional protection and be able to accommodate all firefighters and apparatus.

Ensure full use of all PPE while on the fire line (at all times).

Provide for enough reflex time for firefighters to reach the safety zone.

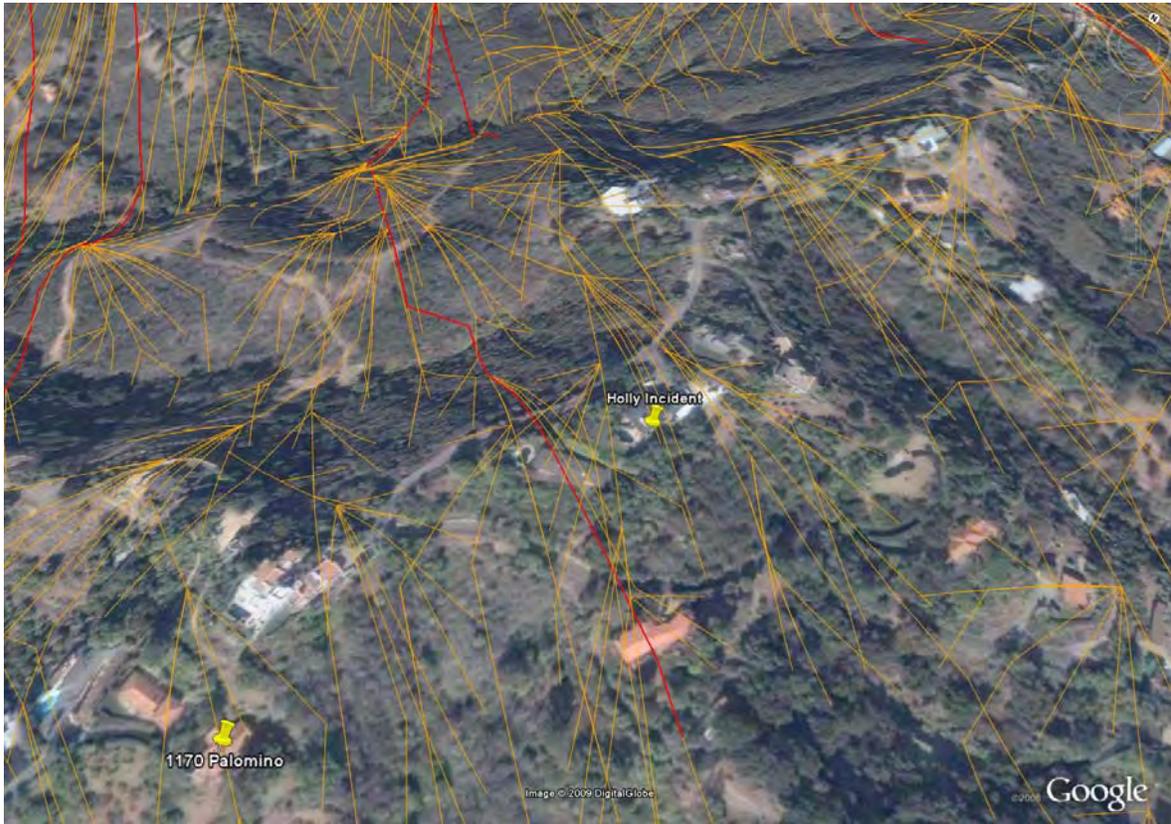
Structures should not be considered safety zones. They are survival zones to only be used as a last resort.

Do not allow the time of year to influence tactical decisions. Base all actions on current, observed, and predicted fire behavior.

Providing structure defense during passage of a flaming front should be considered a frontal assault and is one of the eighteen situations that shout watch out.

When decision points for leaving an area are establish, they must be followed.





Fire path at 1125 Palomino Accident Site., From top to bottom of photo



Driveway at 1125 Palomino



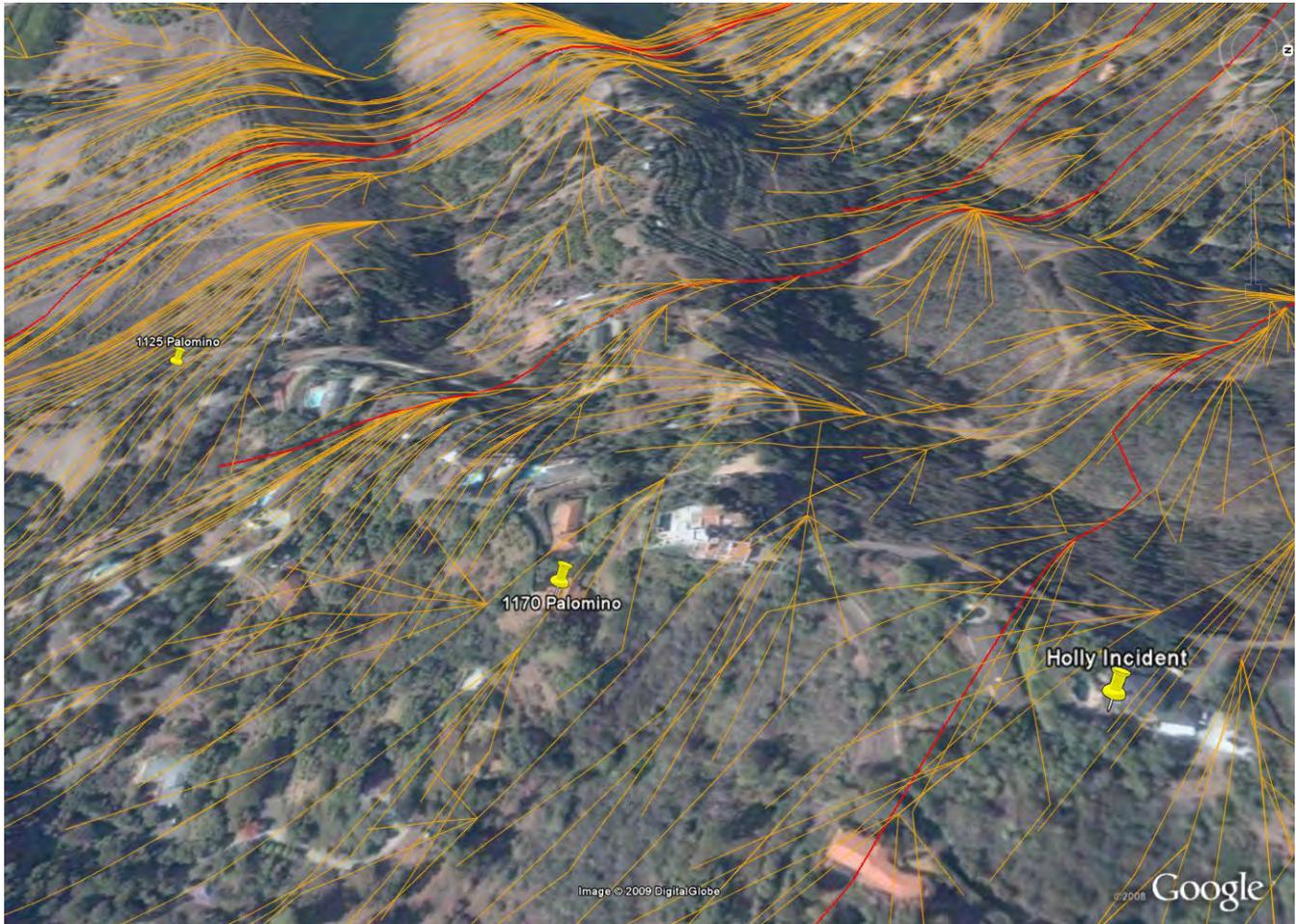
1125 Palomino Accident site where LAC-E-70 took refuge.



LAC E-70 at the Palomino residence



1125 Palomino Accident Site.



Fire path at 1125 Palomino Road

Fire came from the northwest which is the top right to bottom left in the photo.

