

GREEN SHEET

California Department of Forestry and Fire Protection (CAL FIRE)

Informational Summary Report of Serious CAL FIRE Injuries, Illnesses, Accidents and Near-Miss Incidents



Structure Fire

Firefighter Head Injury

November 13, 2012

State Incident

12-CA-RRU-0112639

CA Southern Region

A Board of Review has not approved this Summary Report. It is intended as a safety and training tool, an aid to preventing future occurrences, and to inform interested parties. Due to the fact that it was published within a short time frame, the information contained herein is subject to revision as further investigation is conducted and additional information is obtained.

SUMMARY

The following information is a preliminary summary of an injury that occurred during extinguishment operations at a structure fire. While conducting an exterior attack on a fully involved single story, single family dwelling, a FFII Paramedic was struck by a falling fascia board that hit the firefighter on the helmet. The impact resulted in the firefighter suffering a concussion.

CONDITIONS

Weather:

Cranston RAWS at 2100 hrs.

Temperature – 60 degrees Fahrenheit

Relative Humidity – 12%

Winds – N at 3 mph

Immediate Neighborhood

The neighborhood was constructed in the 1950's and consisted of approximately 18 structures. The structures are a mix of single story and two story single family dwellings. There are numerous small sheds, car port structures and out buildings located in the immediate area. The neighborhood is accessed by a single paved, dead end lane. As the community evolved, the residential neighborhood became surrounded by a commercial and a retail occupancy section. Approximately 5 years ago, the neighborhood structures and property were purchased by the City of San Jacinto as part of a redevelopment project. All of the structures became unoccupied, were abandoned and a chain link fence was installed around the property. The access lane was secured by a locked gate in the fence. All of the habitable occupancies were boarded up and the properties fell into disrepair. Through the years, the structures were vandalized and became a haven for the homeless. The access lane became overgrown and inaccessible to fire apparatus due to multiple downed phone lines just past the location where the fire structure was located. A wharf head fire hydrant located at the dead-end of the lane is inoperable due to extensive vandalism.

Structure:

The structure was approximately a 713 square foot abandoned single story, single family dwelling. The structure was wood frame construction. The interior walls were constructed of lath and plaster construction with the exterior walls having a stucco finish. All of the structure's exterior walls had window openings. All of the structure doors and windows had been broken and/or removed prior to the fire. The floor construction was plywood. The original roof was wood construction with 1" x 4" skip sheeting supporting wood shake shingles. The shake single roof had been removed and the current roof was overlaid with ½ inch Oriented Strand Board (OSB), felt paper and asphalt composite shingles. This roofing improvement took place at an undisclosed date. The roof was of a gable type with the ridge beam running between the Bravo (B) and Delta (D) sides with a 4/12 pitch. The roof had eaves that overhung approximately 3 feet and were finished with a 2" X 8" fascia board. The floor plan included two small bedrooms,

a single bathroom, a combination living room and kitchen, a small utility room and a small rear porch that had been enclosed and covered with aluminum siding. The furnishings had been removed prior to the fire, but a number of old mattresses and other miscellaneous items were still located within the structure.

The yard of the structure was overgrown with grass and had not been maintained for an extended period of time. The yard also had three overgrown and unmaintained trees. The trees were located in the following locations: 1 in the Alpha (A)/Delta (D) corner of the yard, 1 in the Alpha (A)/Bravo (B) corner of the yard and 1 located to the rear of the Bravo (B) area of the yard. The yard had a 4 foot chain link fence on the Alpha (A), Bravo (B) and Delta (D) sides with 6 foot chain link and wood fence on the Charlie (C) side.

Exposures

There was an abandoned single story single family structure on the Bravo (B) side. The exposure was made of wood frame construction with stucco exterior walls and an asphalt composite shingle roof. The roof was a combination of flat and pitched construction. This exposure was located 23 feet from the primary fire structure.

There was an additional exposure that was a wood framed car port. This car port was located in front of the primary exposure and was oriented in the Alpha (A)/Bravo (B) corner of the yard to the primary fire structure. This exposure was located approximately 29 feet from the primary fire structure.

Fire Conditions

When the first engine arrived on scene, they reported that the structure was fully involved. The fire was in an advanced stage with fire blowing out of every door and window of the fire structure. Additionally, the fire was venting through the roof in the Bravo (B)/Charlie(C) corner area (this is the area where the added on patio enclosure was located). The exposed carport located on the Alpha (A)/Bravo (B) corner of the property was issuing fire from the exposed surfaces. The exposure on the Bravo (B) side of the fire structure was starting to take off with fire issuing from the exposed roof eaves. Furthermore, due to the unmaintained condition of the yards, all of the vegetation and the three trees were involved in the fire.

PPE

All three members of the fire attack hose team were properly wearing department issued PPE, including SCBA, from which they were breathing air. The injured Firefighter Paramedic's helmet showed evidence of a soot transfer to the top, rear, right side area of the outer helmet shell which is consistent with an impact from a falling burning structural member. Additionally, there was also soot transfer to the right shoulder area of the Firefighter Paramedic's turnout jacket, which is consistent with an impact from a falling burning structural member.

SEQUENCE OF EVENTS

On November 13, 2012, at 2044 hours, a complete first alarm residential structure fire response was dispatched to a single family dwelling within the partner City of San Jacinto. The response consisted of a Battalion Chief and 6 Type I Engines, and 1 Breathing Support Unit (Light

and Air). This response was consistent and in accordance with the Riverside County Fire Department Standard Operating Guidelines. Due to a previous incident in the area, three of the engines were already in service and all of the employees were dressed in structural PPE. At 2049 hours, Engine 26 reported to the Perris ECC that smoke was visible. At 2050 hours, a patrol unit from the Riverside County Sheriff's Department was on scene and reported that a vacant building was involved in fire. At 2051 hours, Engine 26 (E-26) arrived on scene with a staffing of 1 Fire Apparatus Engineer (FAE), 1 Firefighter Paramedic (FFPM) and 2 Firefighter's (FFII). They reported that a large structure was fully involved and that they would be the "State" IC. They also stated that the incident accountability would be located at E-26 and for the next arriving engine to provide a water supply. Due to overgrown vegetation and the gated access road (Kuhns Dr.), E-26 was spotted in a commercial parking lot off of State Street close to the burning structure. The FAE directed the firefighters to pull a line and make access to the fire. A rotary saw was used to cut through an access gate that leads into a field close to the burning structure. The hose team pulled a 200 foot, 1 3/4" pre-connect attack line through the gate, through the field and up to a 4 foot chain link fence located on the Delta (D) side of the burning structure. Once this was accomplished, the attack team was joined by a Firefighter (FFII) from Engine 72 (E-72). The rotary saw was used to cut an access way through the fence.

Once the fence was opened, fire attack was initiated with the 1 3/4" pre-connect, utilizing a combination nozzle set at 150 GPM, into a doorway on the Delta (D) side, at the Delta (D)/Charlie (C) corner. This door led to a small utility room in the structure and a positive change in fire behavior was achieved prior to relocating the hose line to a 6 foot window located on the Delta (D) side. The water stream was directed through the window opening, but a positive change in fire behavior was not being achieved. A decision was made to move to another 6 foot window opening located on the Delta (D) side near the Delta (D)/Alpha (A) corner in an effort to achieve a better angle on the seat of the fire. The water stream was directed through the window opening, but once more a positive change in fire behavior was not being achieved. The attack team worked back and forth between the two windows for approximately 5-7 minutes with no appreciable change in fire behavior.

After the 5-7 minutes of fire attack, a structural collapse of the roof in the area where the attack team was operating occurred. The roof collapsed inward, with the structural failure located in the middle of the room, which caused the exterior roof eaves to violently be forced in an upward direction. The rapid upward movement of the roof eaves caused the roof eave fascia board to become dislodged and fall. Due to the close proximity of the attack team to the structure during their fire attack efforts, the fascia board fell onto the three members of the attack team. As the fascia board was falling, the Firefighter from E-72 instinctively raised a hand in an effort to block the falling fascia board. The falling fascia board hit the Firefighter's hand and the board broke. While this blocking action lessened the impact of the falling fascia board, the fascia board still hit all three members of the attack team. The Firefighter Paramedic who was on the nozzle was hit in the helmet and shoulder by the falling fascia board. This impact dazed the Firefighter Paramedic to the point the firefighter fell to the knees, leaned against and slid down the exterior wall of the still burning structure.

The injured Firefighter Paramedic was assisted out of the immediate fire area and back into the field where the attack team had previously assembled. The Firefighter Paramedic was asked if injury had occurred. The injured firefighter stated just a moment was needed to rest. The Firefighter

who assisted the injured firefighter out of the fire area went back to work and rejoined the attack team.

At the same time as the fire attack was being initiated, E-72 had laid a 4 inch supply line into E-26 and the Fire Apparatus Engineer (FAE) from E-72 was assisting the FAE from E-26 in establishing the water supply. The remaining personnel from E-72 were in the process of pulling a 2 ½ inch attack line from E-26 and stretching it towards the fire. At the same time, E-25 arrived on scene and made entry through the gate on Kuhns Drive. They located their engine in front of the fire building. In combination with E-25 access efforts, Engine 78 (E-78) secured a 4 inch supply line off of the same hydrant that was being utilized by E-72 and E-26. E-78 laid their supply line into E-25 and assisted E-25's crew with pulling additional 1 ¾ inch attack hose lines. Engine 3 (E-3) arrived on scene and spotted in the same commercial parking lot as E-26 and E-72.

After the FAE from E-72 had finished assisting the FAE from E-26 in securing the water supply, he made his way towards the fire when he came upon the dazed Firefighter Paramedic kneeling in the field. After performing a quick assessment of the dazed Firefighter Paramedic, he directed and assisted the dazed Firefighter Paramedic to the rear of E-26. The dazed Firefighter Paramedic was medically assessed by another Firefighter Paramedic from E-3. Based on the medical assessment, the decision was made to have the Firefighter Paramedic transported to a local Trauma Center. A request was made through the Perris ECC at 2117 hours to have an ambulance respond to the incident for an injured firefighter.

The fire was extinguished in the primary structure, exposure, car port and yards utilizing a single 2 ½ inch attack hose line and multiple 1 ¾ inch attack hose lines with-out further incident.

INJURIES/DAMAGES

The Firefighter Paramedic was evaluated and treated at the local Trauma Center for a concussion. The Firefighter Paramedic was released from the Trauma Center within 6 hours without being admitted.

SAFETY ISSUES FOR REVIEW

- Ensure that risk versus gain analysis is performed and in balance.
 - In this incident, the structure was fully involved in fire with fire venting out of every door and window. Even if the structure was occupied at the time that the fire started, it was no longer a survivable environment. Always base attack strategy on the actual conditions that are encountered. Keep in mind the tactical rule of "Risk a lot to save a lot, but we will risk nothing to save nothing"
- Maintain situational awareness at all times while conducting fire ground tasks.
 - Situational awareness must be maintained by all personnel of all ranks and all assignments. When a structure is fully involved and has been burning at a high level of intensity for a prolonged time, structural collapse must be considered as an inevitable event in the progression of the incident.

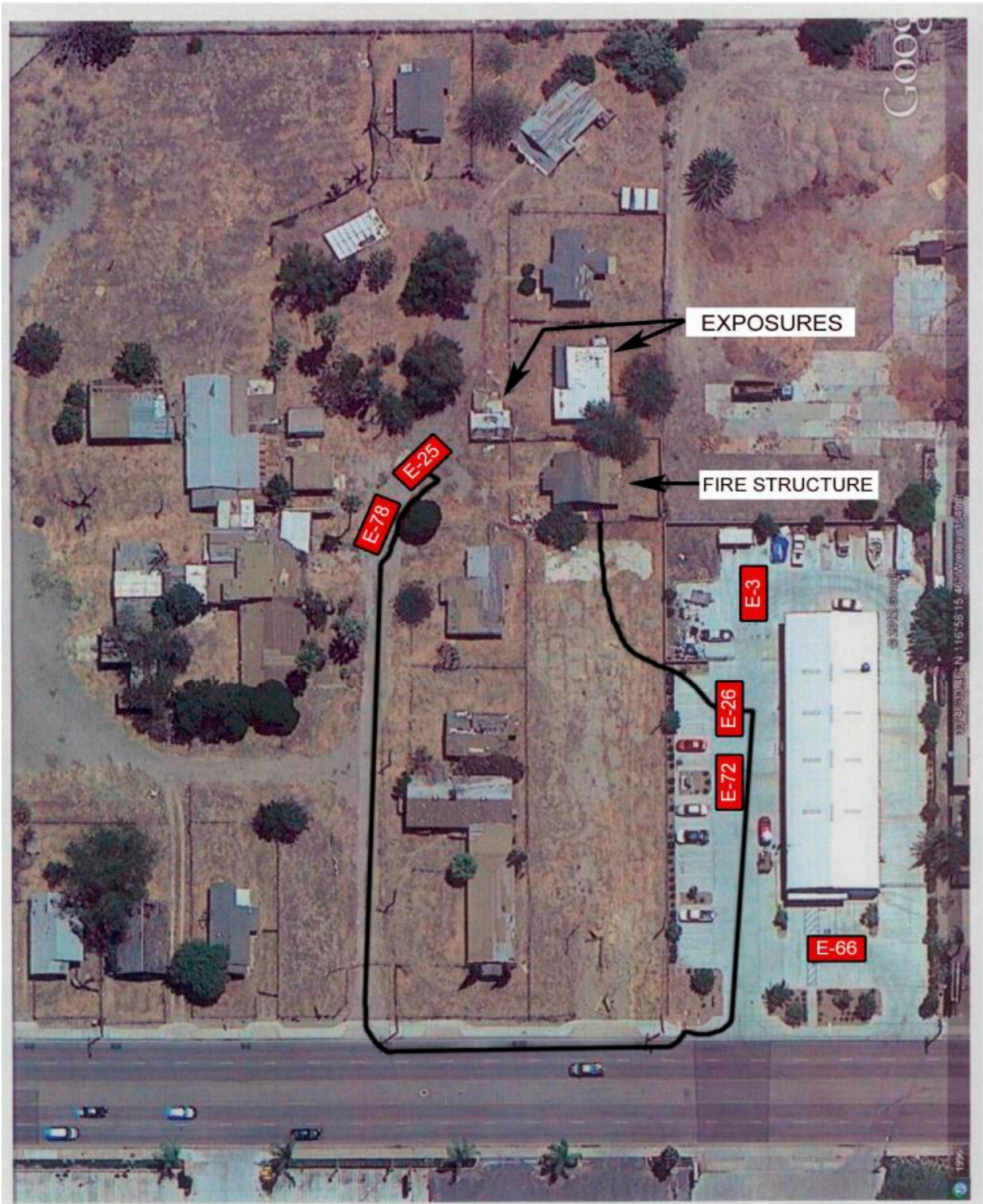
- Fight fire aggressively, having provided for safety first.
 - Always insure personnel safety at emergency incidents of all types. It is critical to temper the desire to approach the best hose line attack position with the requirement to insure a safe work environment for all personnel.
- Provide Company Officer level supervision during high risk firefighting operations.
 - In order to provide safe, effective and efficient fire ground, a Company Officer should be in the immediate area where crews are deployed to lead, guide, direct and insure a safe working environment.
- Establish a collapse zone during exterior defensive firefighting.
 - When conducting a defensive exterior attack on a structure that is involved in an advanced fire condition, a collapse zone must also be established. The size of this collapse zone will vary based on building construction, fire conditions and fire load and type. The general rule of establishing a safe collapse zone shall be a distance away from the structure equal to 1.0 to 1.5 times the height of the structure. This collapse zone must be maintained for personnel safety until a structural risk assessment has been performed by qualified incident command staff.
- Insure that attack GPM flows meet required fire flows.
 - Attack line GPM rates must match/exceed the BTU output generated by the fire. Attack line size and nozzle type/setting must be matched to the fire conditions encountered and predicted. While it may not reasonable to expect that an exact scientific calculation will be made on all incidents, it is expected that Company Officers will employ fire flows based upon a set of pre-planned parameters.
 - If attack hose line teams are not achieving a change in fire behavior during their extinguishment efforts, a change in tactics must be considered. A change in nozzle GPM setting, a call for additional attack lines of equal or larger size, a change of attack modes or a tactical withdrawal must be considered.
- Stay alert to potential and predictable structural collapse.
 - When encountering a structure in an advance state of decay due to intense fire behavior, structural collapse must be taken into account by all personnel. Any and all signs of a pending structural collapse condition must be immediately communicated to both incident command staff and all personnel assigned to the incident.

INCIDENTAL ISSUES/LESSONS LEARNED (For Near-Miss and Non-Serious Accidents)

- Size up is an ongoing process that must be accomplished by both command and task oriented divisions/groups. This situational awareness needs to be continually monitored and plans/tactics need to be adjusted based on incident driven needs.



- Delta (D) side of structure where fire attack was initiated.
- Cut in fence is where access was made to fire property.
- Area between two bay windows is where fire attack personnel were standing when collapse occurred.



- Large paved road is State Street.
- Small access lane that Engines 25 and 78 are located is Kuhns Drive.
- Hose lines are representative at the time of collapse.

Lookouts

Communications

Escape Routes

Safety Zones