

# Informational Summary Report of Serious or Near Serious CAL FIRE Injuries, Illnesses and Accidents



## GREEN SHEET

### Structure Fire Burn Injuries

May 28, 2018

Young Commercial Structure Fire

18-CA-LNU-007101

18-CA-LNU-007173

California Northern Region

### SUMMARY

On Tuesday May 28, 2018, at approximately 2:20 PM, a CAL FIRE Fire Fighter I (FFI) was injured while performing interior fire attack operations on a commercial structure fire in Middletown, California. The FFI suffered moderate burn injuries and was transported by air ambulance to University California Davis Medical Center (UCDMC) in Sacramento, CA. The FFI was released on May 30, 2018.

## CONDITIONS

**Weather Conditions at Scene:** Clear skies with a light breeze from the west/southwest at the time of the incident.

**Weather:** Weather observation taken from the nearest RAWS located approximately 16 miles to the east at Knoxville Creek on May 28, 2018 at 2:00 PM.

Temperature: 89° Fahrenheit  
Relative Humidity: 21%  
Winds: NE 10 MPH  
Visibility: Clear

**Fire Behavior:** Upon arrival, the first engine observed light smoke visible at the Charlie/Bravo corner near the roof line. Flames were seen through a small opening on the Charlie/Bravo corner at street level.

**Structural Features:** The structure was an occupied, commercial grocery/hardware store estimated to be 14,400 square feet with a metal frame, metal siding, metal roof and was not equipped with a sprinkler system. The structure had an open floor plan consisting of rack shelving and enclosed refrigeration units.

A mezzanine style office space constructed of ordinary wood frame materials spanned the Charlie side of the structure and was used for office space and storage for hardware and grocery inventory. It also contained a compressor refrigeration system for the entire building. The area below the mezzanine was a receiving area for deliveries and additional storage.

## SEQUENCE OF EVENTS

On May 28, 2018 at 2:20 PM the St. Helena Emergency Command Center (ECC) dispatched a commercial structure fire response in Middletown, CA. The initial dispatch consisted of one Battalion Chief (BC), seven fire engines, one truck, and one medic unit. Updated information from the ECC reported that the fire was located to the rear of the store in the compressor room.

The first arriving engine was a CAL FIRE Model 34 (E1) with three-person staffing consisting of one Fire Apparatus Engineer (FAE1) and two Fire Fighter I's (FF1) (FF2). Upon arrival at 2:23 PM, FAE1 reported smoke and flames showing from the rear corner and no water supply established.

FAE1 spotted the engine approximately 20 feet beyond the corner of the structure, then engaged the pump. FF1 and FF2 donned their Self Contained Breathing Apparatus (SCBA). FF2 deployed the rear 1 ¾ inch preconnected attack line and flaked the hose in preparation for an offensive attack. FF1 positioned at the rear service door with the nozzle and waited for FF2 to don his SCBA mask. The service door consisted of a combined man door and small rollup door. FF1 and FF2 applied water from the threshold into the structure. FF1 and FF2 advanced the line to an interior position approximately three feet beyond the door opening and continued fire attack. FAE1 did not know FF1 and FF2 entered the structure.

At 2:24 PM, BC1 arrived at scene and assumed command of the incident (IC). The IC assigned the next engine (E2) to water supply.

**The following sequence of events occurred simultaneously within a period of 90 seconds:**

FF1 experienced a change in interior conditions when the smoke became thick and black with zero visibility and an extreme increase in heat that became untenable.

FAE1 was at the front of E1 and noticed a change in the fire behavior. FAE1 observed the smoke becoming thick, black, and banking down to the ground. Due to the changing smoke conditions, FAE1 lost sight of FF1 and FF2.

FAE1 transmitted on the assigned tactical (TAC) frequency, "back out, back out". FF1 and FF2 heard the transmission and FF2 acknowledged on TAC. At this point, FF1 stopped flowing water. Due to zero visibility, FF1 and FF2 were separated.

FF1 dropped the nozzle. While attempting to exit, FF1 ran into the rollup door and fell to the ground. FF1 found the doorway and exited the structure. Once outside, FF1 realized FF2 did not exit. FF1 began yelling for FF2.

FF2 located the nozzle approximately two feet away by following the hose. FF2 attempted to locate FF1 in the immediate area, not knowing FF1 had exited the structure. FF2 was not flowing water.

Due to an increase in fire activity and the proximity of E1 to the structure, FAE1 made the decision to reposition E1. FAE1 was unaware that FF1 had exited and FF2 was still interior. FAE1 moved E1 forward approximately 20 feet. The pump was disengaged during this action, causing a loss of pressure to the attack line.

FF2 attempted to exit the structure, then ran into the same rollup door that FF1 ran into. Simultaneously the attack hose line went limp. Within seconds, there was a catastrophic failure of the structure's high pressure refrigeration lines directly above FF2. An additive to the refrigerant ignited and caused a pressurized release of flammable material. The flammable material ignited, causing a significant fire ball that completely engulfed FF2 for approximately 19 seconds. FF2 located the door and crawled out of the structure.

FF1, FAE1, and a California Highway Patrol (CHP) officer ran to FF2's position outside the structure and repositioned FF2 to a safe location. FF2 was treated at scene by paramedics prior to being transported via air ambulance to UCDMC for burn injuries.

## **INJURIES/DAMAGES**

FF2 suffered second degree partial thickness burns to eight to ten percent of the body including the right ear, lower back and to the back of the arms from the shoulders to the elbows.

## **SAFETY ISSUES FOR REVIEW**

- Ensure employees are familiar with [Two In–Two Out policy](#).
- Ensure subordinate employees are given clear direction on strategies and tactics.
- Ensure employees properly utilize all components of structural PPE.
- Ensure employees consider the variables that are associated with commercial occupancies.
- Communication among interior fire attack members must be maintained at all times using, visual, voice, signal or physical contact.

## **INCIDENTAL ISSUES/LESSONS LEARNED**

- The structural personal protective equipment (PPE) had a direct impact of minimizing the injuries suffered by FF2.

## PHOTOS/SITE DIAGRAMS/MAPS



E1 arriving at scene, conditions observed at 2:23 PM.



FF1 and FF2 deploying attack line and preparing for offensive attack at approximately 2:24 PM.



E1 is relocated while pressurized fire ball was observed from the north side of the structure.



FF1 seen exiting while pressurized fire ball is observed from the south side of the structure.

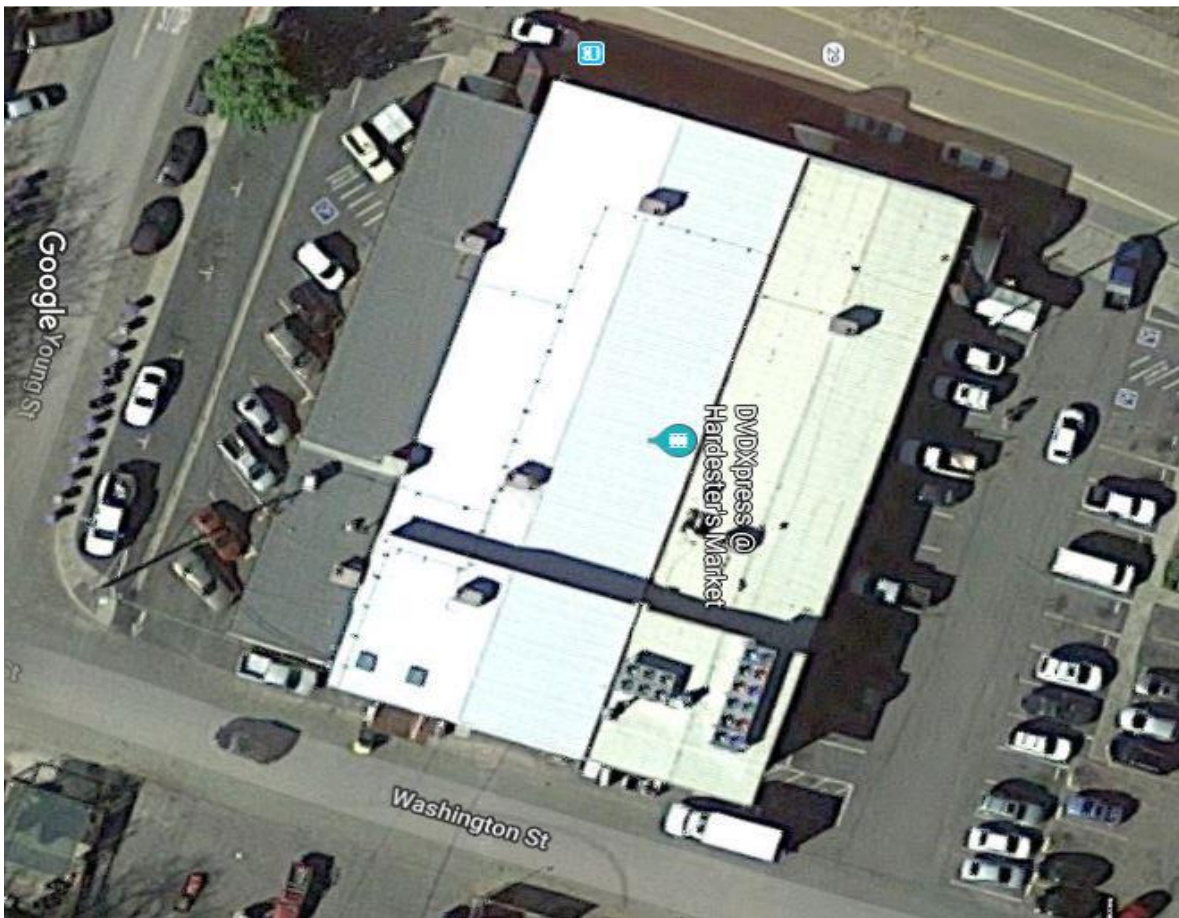


## Structural PPE







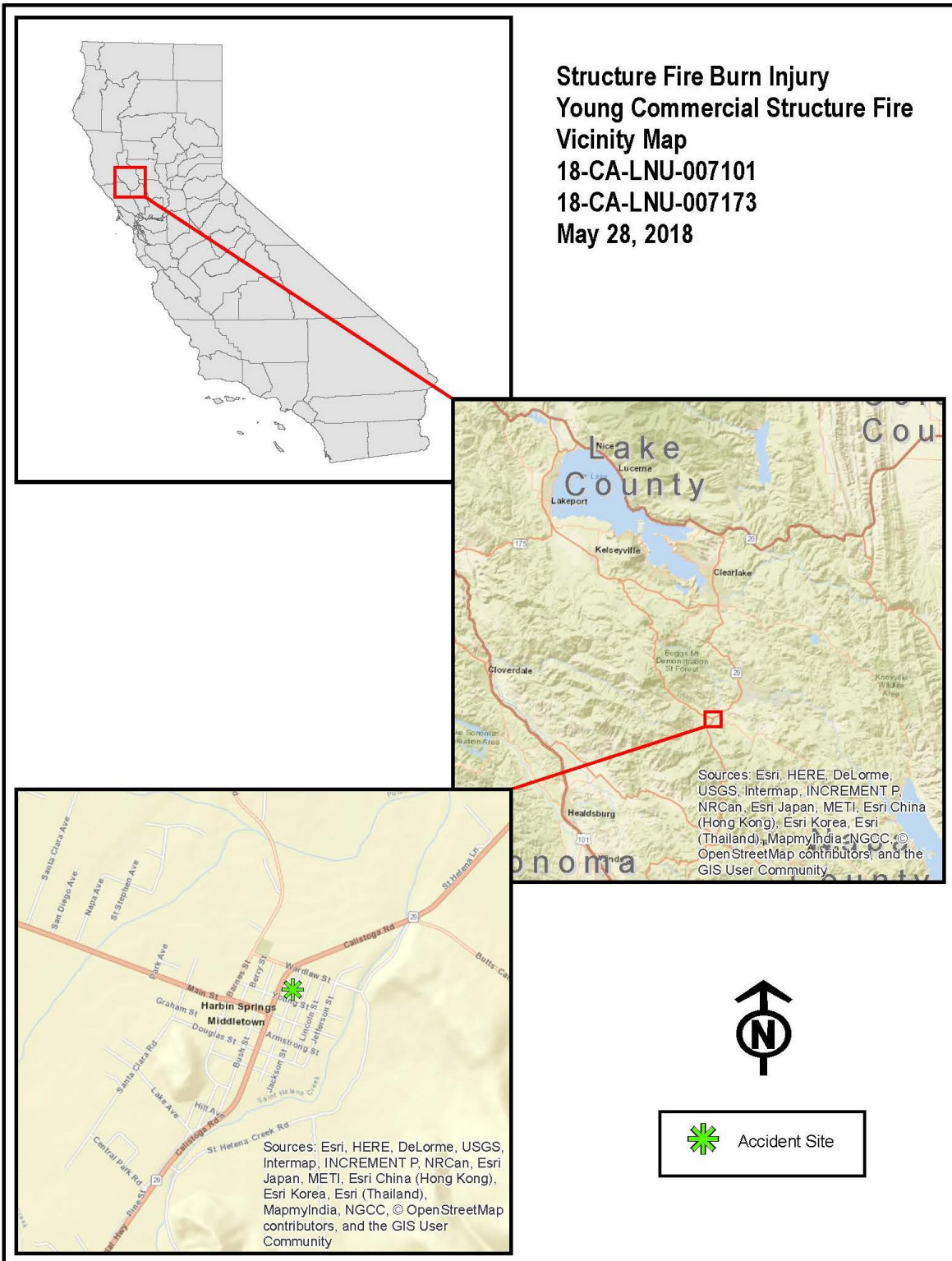


Pre-fire aerial photo of the commercial structure.



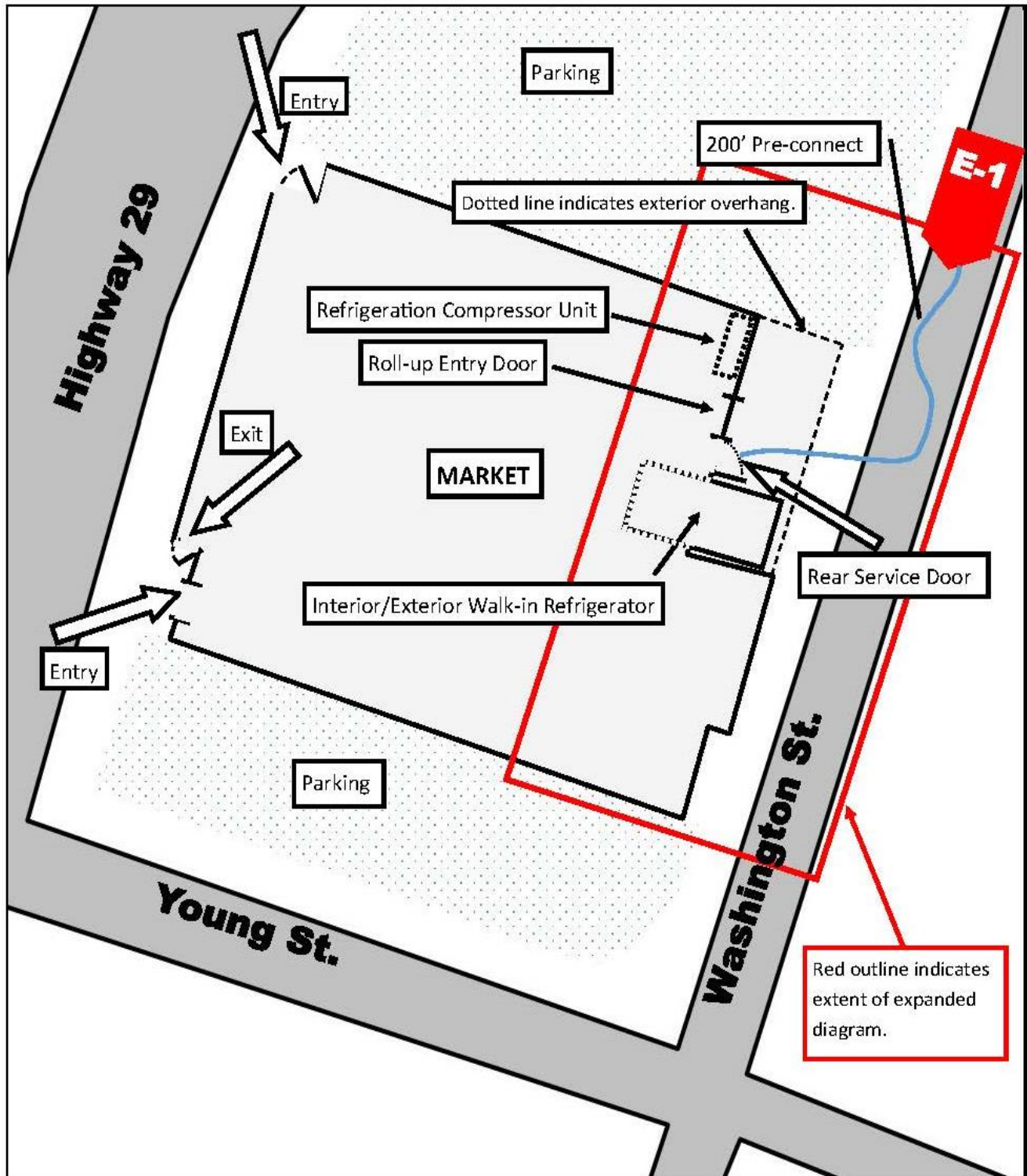
Pre-fire view of the rear of the commercial structure where injuries occurred.

## Map & Diagram of Structure





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NOT TO SCALE

