

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



Heat Related Injuries Involving Two Firefighters Heat Illness/Injury

July 20, 2012

Border 14 Fire

12-CA-MVU-007686

12-CA-CDF-000553

California 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. Because it is published on a short time frame, the information contained herein is subject to revision as further investigation is conducted and additional information is developed

SUMMARY

On June 20, 2012, CAL FIRE units were assigned to cut handline on the Border 14 Fire, a fire that burned north from Mexico into San Diego County. At approximately 11:17 a.m., a firefighter exhibited symptoms of heat illness and became unresponsive. Immediate care was provided and the firefighter was transported to a hospital by helicopter. After extraction, the remaining group completed their assignment. While they returned to their apparatus, another firefighter exhibited symptoms of heat illness. This second firefighter was cared for, airlifted to a stand-by medic unit, and ground transported to a local hospital.

CONDITIONS

Weather

At scene weather conditions at the time of the incident:

- Temperature: 90° Fahrenheit
- Relative humidity: 34%
- Wind: West at 5 to 8 miles per hour (mph)

Terrain

Moderate to steep topography and rocky terrain. Slopes were determined to be approximately 50% where handline construction occurred.

Fuels

The fire burned in annual grasses and broad leaf chaparral consistent with NFFL fuel model GS1 (low load, dry climate grass-shrub). The last recorded fire in this area was in 2007.

Fire Behavior

This was a low intensity backing fire with occasional torching of brush (sage and sumac).

Personal Protective Equipment (PPE)

All appropriate wildland PPE was worn and in serviceable condition. The wildland webgear worn by Helitack Firefighter #1 did not have an integrated hydration system; however, Firefighter #1 carried sufficient quantities of drinking fluids in plastic bottles. Webgear worn by Firefighter #2 showed excessive amounts of a white substance on the entire pack resembling that of sweat deposits or salts. Firefighter #2 wore a long sleeve cotton tee shirt underneath the nomex jacket.

Hydration and Nutrition

Hydration breaks were taken during handline construction. Lunches were available at the apparatus but not carried on the fire line.

Firefighting Experience

The incident occurred on Firefighter #1's second day back on duty following the Re-Hire Academy. Firefighter #1 had five seasons of firefighting experience with the last three

years assigned to Helitack. This was Firefighter #2's first day back on duty following the Re-Hire Academy. Firefighter #2 had six seasons of firefighting experience with the previous five years assigned to Helitack.

SEQUENCE OF EVENTS

On July 19, 2012, at approximately 1:42 p.m., the Monte Vista Emergency Command Center was advised of a wildland fire burning in Mexico approximately one mile south of the United States Border. The Border 14 Fire was approximately 500 acres burning in annual grasses and brush. Based on anticipated fire spread toward the border, the Battalion Chief requested additional resources to respond the following morning.

On July 20, 2012, at approximately 7:30 a.m., CAL FIRE resources including an Air Attack, Helitack Crew, five Engines, four Crews and two Water Tenders responded. At approximately 7:56 a.m., two helicopters arrived at scene. The Helitack crew conducted a briefing prior to engaging the fire. Based on the amount of mid-slope handline to be constructed, the Helitack Captain advised the crew to work at an "all day pace." Following the briefing, the Helitack crew entered Mexico and anchored the handline into an old burn.

By 8:56 a.m., four Engines arrived at scene. Three of the Engine companies hiked up to the fire and met the Helitack crew on the line. During line construction supervisors checked the status of their crews and firefighters took individual breaks as necessary. At approximately 10:55 a.m., the Helitack Engineer heard a member of the Helitack crew (Firefighter #1) say he was tired. The Helitack Engineer told Firefighter #1 to rest and removed an extra tool and medical bag from Firefighter #1's load. Firefighter #1 drank two bottles of water. Following the break, Firefighter #1 returned to the line.

At approximately 11:15 a.m., after construction of approximately one-half mile of handline, a Helitack Firefighter saw Firefighter #1 struggling to climb over a large rock. Firefighter #1 let out a loud yell. The Helitack Firefighter assisted Firefighter #1 to a sitting position. While being evaluated by crew supervisors and firefighters, Firefighter #1 became unresponsive.

At 11:17 a.m., the Border IC requested an air ambulance for a firefighter down. Fire personnel quickly stripped Firefighter #1 of PPE and clothing and initiated rapid cooling measures by pouring water over Firefighter #1's head and body. Firefighter #1 became unconscious and the decision was made to carry Firefighter #1 uphill to an emergency helispot. In total, fire personnel carried Firefighter #1 325 feet uphill on loose dirt slopes ranging from 25% to 50%. Firefighter #1 was loaded into the helicopter and transported to Mercy 6, an ALS air ambulance already at scene of the fire. At approximately 11:46 a.m., Mercy 6 flew Firefighter #1 to Sharp Grossmont Hospital.

Following the extraction of Firefighter #1, personnel on the line rested and shared the remaining water and Gatorade. Helitack and Engine supervisors briefed and checked the status of their personnel as they waited for delivery of water, Gatorade and ice. During rehab, an Engine firefighter (Firefighter #2) was noticeably tired and complained of arm,

leg and hand cramping. The Firefighter's Engineer offered Firefighter #2 a flight off of the mountain. Firefighter #2 told the Engineer he was okay. Approximately 1 hour later, after fire personnel rehydrated and obtained more supplies, fire personnel decided to re-engage the fire.

At approximately 1:15 p.m., Firefighter #2 was directed to rest due to continued leg and hand cramps. The Engineer stayed with Firefighter #2. Firefighter #2 did not perform any work as the remaining firefighters completed the handline.

At approximately 3 p.m., all personnel began to hike off the line. As they approached their destination, supervisors noticed Firefighter #2 slowing down. Firefighter #2 was ordered to remove his helmet, webgear and nomex jacket. Upon further evaluation, supervisors determined Firefighter #2 required medical treatment. At approximately 4:13 p.m., the Helitack helicopter transported Firefighter #2 to the CAL FIRE Dulzura Station where a stand-by ambulance transported Firefighter #2 to Sharp Grossmont Hospital.

INJURIES

Firefighter #1 was admitted to the Intensive Care Unit and released two days later requiring follow-up evaluation.

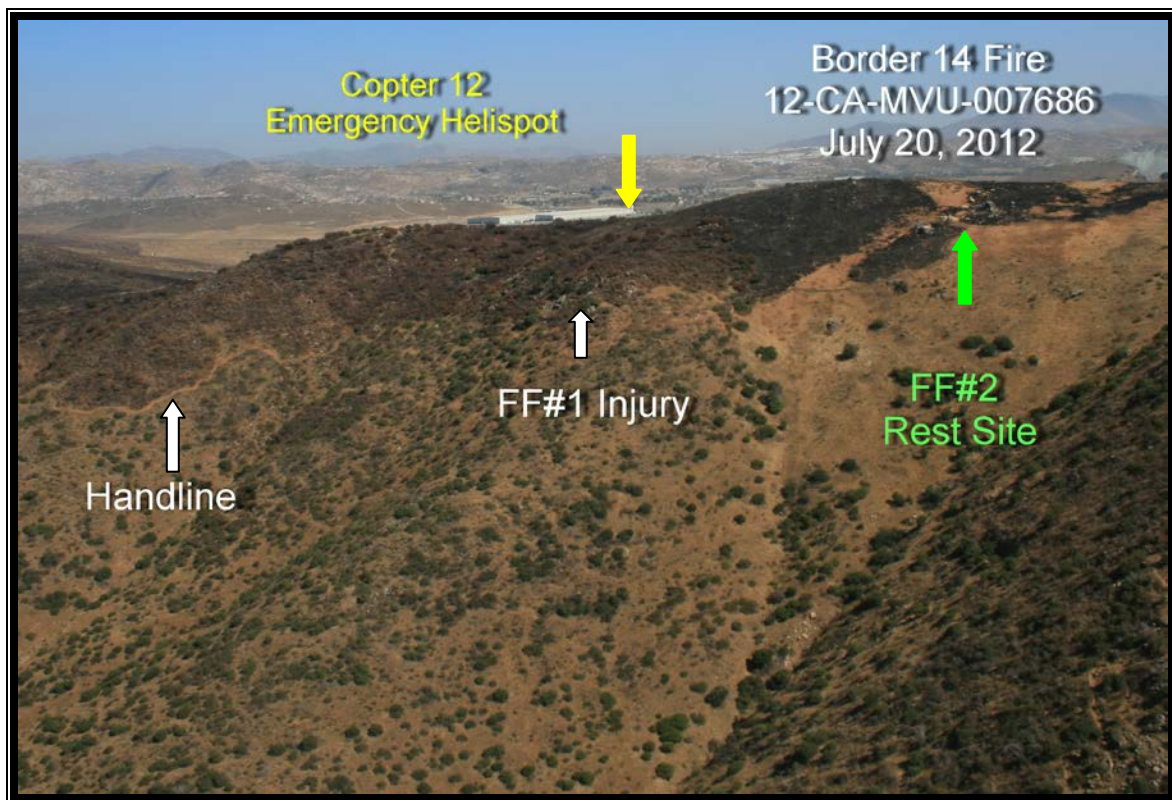
Firefighter #2 was admitted to Sharp Grossmont Hospital overnight and released to full duty the following day.

SAFETY ISSUES FOR REVIEW

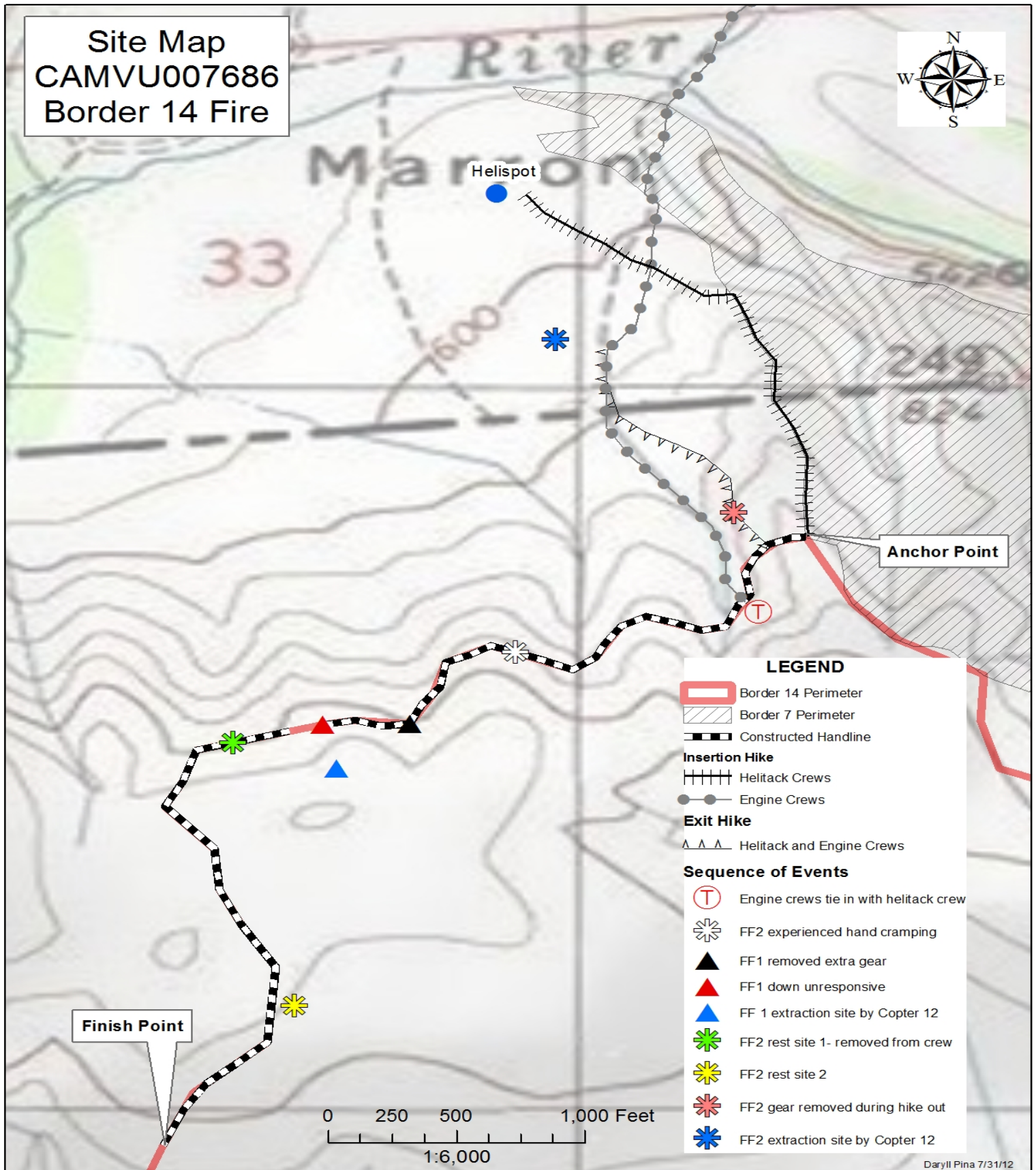
- All personnel should familiarize themselves with the Department Heat Illness Prevention Policy HB Section 1855- <http://cdfweb/pubs/issuance/1800/1855.pdf>
- All personnel should familiarize themselves with the Department Heat Illness Prevention Plan- <http://calfireweb/organization/fireprotection/safety/>
- **Be able to recognize the signs and symptoms of heat illness in yourself and others.**
 - If you are feeling overexerted – STOP!
 - Hydrate and lower your heart rate. Oftentimes feeling 'thirsty' means that you are already dehydrated.
 - If you have signs or symptoms of heat illness, notify your supervisor and co-workers immediately.
- Rapid BLS cooling measures followed by early ALS intervention are critical components of treating serious heat illnesses.
- Immediately treat heat illness if it occurs. Ignoring or delaying the need for medical attention could lead to permanent disability and even death.

- Make sure equipment and personnel are supplied with adequate amounts of drinking water and electrolyte replacement fluids such as Gatorade or approved sports drinks. Recommend water to electrolyte enhanced drink at a ratio of 2:1.
<http://calfireweb/organization/fireprotection/safety/documents/hydrationlogisticspocketcard.pdf>
- Monitor hydration status by observing urine color; pale yellow or wheat color is normal. A lighter color is a sign of over hydration and can flush electrolytes from your system; dark yellow or brown urine is a sign of dehydration-
<http://calfireweb/organization/fireprotection/safety/documents/hydrationchart.pdf>
- Eat several small meals a day rather than three large meals for higher energy and a more optimal metabolism. Place snacks such as granola or energy bars in your personal gear in the event that you are unable to eat regular meals.
- Ensure all firefighting personnel are trained on recognition and treatment of heat illness injuries.

SCENE OVERVIEW







Lookouts

Communications

Escape Routes

Safety Zones