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FROM : National Wildfire Coordinating Group

REPLY TO : NWCG@nifc.gov

DATE : 07/16/2006

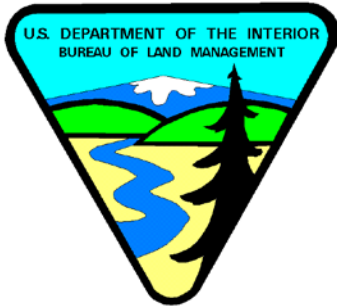
SUBJECT : SAFETY BULLETIN : Sawtooth Entrapment 72 Hr Report

The attached 72 Hour Report describes the entrapment events that occurred on the Sawtooth Fire, a multi jurisdictional incident in Southern California .



Sawtooth Complex Green Sheet_72 Hour Report.doc

GREEN SHEET/ 72 HOUR REPORT



A Joint Investigation By:

**Bureau of Land Management
San Bernardino County Fire Department and
California Department of Forestry and Fire Protection**

**Wildland Fire Entrapment
Minor Burn Injuries and Smoke Inhalation**

Fire Engine Damage

Command Vehicle Damage

July 11, 2006

Sawtooth Complex

Incident Number 06-CA-BDU-007229

Accident Investigation Incident Number CA-CSR-059

SUMMARY

The following information is a preliminary summary of an incident with entrapments that occurred on a vegetation fire in which fire engines and a command vehicle received minor fire damage. Four firefighters suffered minor injuries.

CONDITIONS

Location: Incident 1 - involving BLM Captain 3636 occurred approximately two miles southwest of the intersection of Keys Ranch Road and Pioneertown Road, which is located approximately 1 and 1/2 miles northwest of Pioneertown.

Incident 2 - involving San Bernardino County Fire Department (BDC) Engine 122 occurred at Paloma Avenue and Lariat Trails, in Pioneertown.

Incident 3 - involving BDC Engine 122B occurred on Lariat Trails near Paloma Avenue, in Pioneertown.

Fuel: **Type:** Fuels in the Pioneertown area are a mix of (Fuel Model 2) Pinyon Pine, California Juniper with scattered Joshua Trees, and a heavy grass component.

Loading: The fuel bed ranged from 2-3ft. in height. Fuel loadings varied 2-5 tons per acre.

Continuity: Fuel was very continuous with no significant break in the continuity.

Live Fuel Moisture: Evaluations indicated live fuel moisture of 58%. The fuel loading was higher than that of the normal limits due to the above normal rainfall in 2004 and 2005.

Dead Fuel Moisture: Fine dead fuel moisture indicated 1 hour time-lag fuel moisture of 3-4%. The ignition probability of a firebrand landing in receptive fuels was 100%

Weather: **Temperature:** High 90s
Relative Humidity: 5-8%
Winds: Southwest 11-20 mph G 37

Fire Behavior: The burning conditions were caused by an upper-level trough which passed over Southern California, resulting in strong gusty winds over the fire area. The weather combined with heavy fuels created extreme burning conditions. These weather conditions were not forecasted in the morning fire weather. On scene fire personnel reported very extreme wind gusts, plume dominated fire behavior, and area ignition.

SEQUENCE OF EVENTS

Incident 1 - BLM Captain 3636

On July 11, 2006, at approximately 1332 hours, BLM E3636, E3632, and BLM DIV 3604 were dispatched for structure protection in the Pioneertown area. Captain 3636 responded separately in his utility vehicle.

Arriving at the scene ahead of the engine crews, Captain 3636 met with CDF Prevention 3522 and received the instructions to drive to Keys Ranch Road then head west to evaluate structures for protection. Captain 3636 met CDF E3586 along Keys Ranch Road and instructed them to follow him further up an unnamed road to assist in fire protection.

Approximately one mile up the road in a northwest direction they arrived at a large residential structure with approximately a three-quarter acre clearing adjacent to it. A civilian at the scene told Captain 3636 there were two more residential structures toward the mouth of the canyon where the fire was approaching. Captain 3636 then radioed DIV 3604 instructing him to hold all incoming resources at the large three-quarter acre clearing (safety zone) while he scouted further.

The road narrowed and had thick vegetation on both sides but Captain 3636 could still observe the fire's progress and felt he could proceed safely based on the fire behavior. He continued until he reached a large two-story residential structure at the end of the road.

Before he had time to get out of his vehicle to assess the structure, the fire front hit with black out conditions including high velocity winds and extreme heat. Realizing that he had no escape options, he remained in his vehicle while the fire front passed by him.

Captain 3636 radioed DIV 3604 to let him know of his situation. He then radioed P3522 on RED net to ask for air support. Given the extreme conditions of wind and smoke, air support was not feasible.

While taking refuge in his vehicle Captain 3636 crawled into the back seat of his vehicle and pulled his fire shelter out of his web gear for easier access if needed. He returned to the driver seat to back up his vehicle due to fire impingement to the front of the vehicle.

Captain 3636 maintained his refuge in the vehicle until the smoke and flames had visibly cleared and he knew the fire front had passed. He radioed DIV 3604 and P3522 to let them know he was safe.

Incident 2 - San Bernardino County E122

On July 11, 2006 at approximately 1300 hours, San Bernardino County E122 was assigned to provide structure protection for homes in the Pioneertown area, as part of a structure protection group on the Sawtooth Complex Fire.

The task force group leader BDC BC 137 was in charge of BDC E121, E122, E36, E451 and E122B. E122B was operated by the City of 29 Palms Fire Department Station 421 personnel.

After the task force began clearing vegetation from around structures, they were called to provide support for strike teams in the Keys Ranch Road area. The groups fought fire using bump and run tactics and then returned to the Paloma Avenue and Lariat Trails to continue providing structure protection. The crew returned to the residential structure clearing brush, then noticed the changing fire behavior. High velocity winds blew into their

assigned area causing the fire to rapidly spread towards their location. The engine crew took refuge in E122 to escape the extreme fire activity. While taking shelter in the rear of the engine cab, the crew heard escaping refrigerate gas from the roof-mounted air conditioning unit.

The fire blew over E122; the captain evaluated crew conditions and returned to the pre-established safety zone of San Bernardino County Fire Station 38. BC137 performed group safety checks and medical treatment was provided to crew members by a county medic ambulance. Three firefighters were treated for minor burns and smoke inhalation and were transported to a local area hospital.

Incident 3 – 29 Palms E122B

BDC E122B, operated by City of 29 Palms personnel, positioned at two residential structures on Lariat Trails. The crew prepared for structure protection and observed the fire at a distance, estimating a half mile from their location moving towards them at a moderate rate of spread. The crew continued to protect the structures when the fire spread increased significantly. The crew sought refuge in the garage of the residence.

The smoke level in the garage began to drop and the heat increased as the roof of the garage ignited and the house burned. Due to the Fire Captain's command presence, the crew remained calm and escaped through a garage window and observed their engine still intact. They entered the engine and drove back to the strike team pre-established safety zone at San Bernardino County Station 38.

During the drive to the fire station the crew experienced zero visibility. At one point they slowed down to make a turn near a burning Joshua tree where the engine received minor damage. A firefighter sitting in the back of the open rear cab fire engine sustained minor burns to her back when turning away from the radiant heat. She wore all her wildland PPE.

The fire engine and crew arrived safely at the pre-established safety zone and the injured firefighter was treated for the burn injury and transported by ambulance to the hospital. There she was treated and released returning back to her crew.

INJURIES/DAMAGES

Incident 1 - BLM Captain 3636

Injuries

- No injuries.

Damage

- The damage of the BLM command vehicle consisted of: melted front vehicle lenses; melted the driver-side mirror; and minor scorching to the paint at the front and rear of the vehicle.

Incident 2 - San Bernardino County E122

Injuries

- 1 firefighter received minor burns, and was transported to a local area hospital treated and released. The firefighter was released from duty for one day due to the injury.
- 2 firefighters were observed for smoke inhalation, treated and released.

Damage

- Damage to BDC E122 consisted of: moderate blistering of paint on left side of the engine; melting of the rubber seal around the driver's side rear cab window which cracked the windshield; melting of the plastic gauge covers and plastic name plates on the pump panel; melting of the light bar on top of the cab; damage to the air conditioning system on the roof of the cab; and melting of the rear hose bed covers.

Incident 3 - Palms E122B

Injuries

- 1 firefighter from the City of 29 Palms Fire Department from Station 421 suffered minor first degree burns on the right shoulder and neck, and smoke inhalation. The firefighter was treated at the hospital and was released.

Damage

- The damage to BDC 122B operated by 29 Palms Station 421 personnel consisted of: cracked windshield and side window; melted pump panel gauges; and minor scorching of the body paint on the front of the cab.

SAFETY ISSUES FOR REVIEW

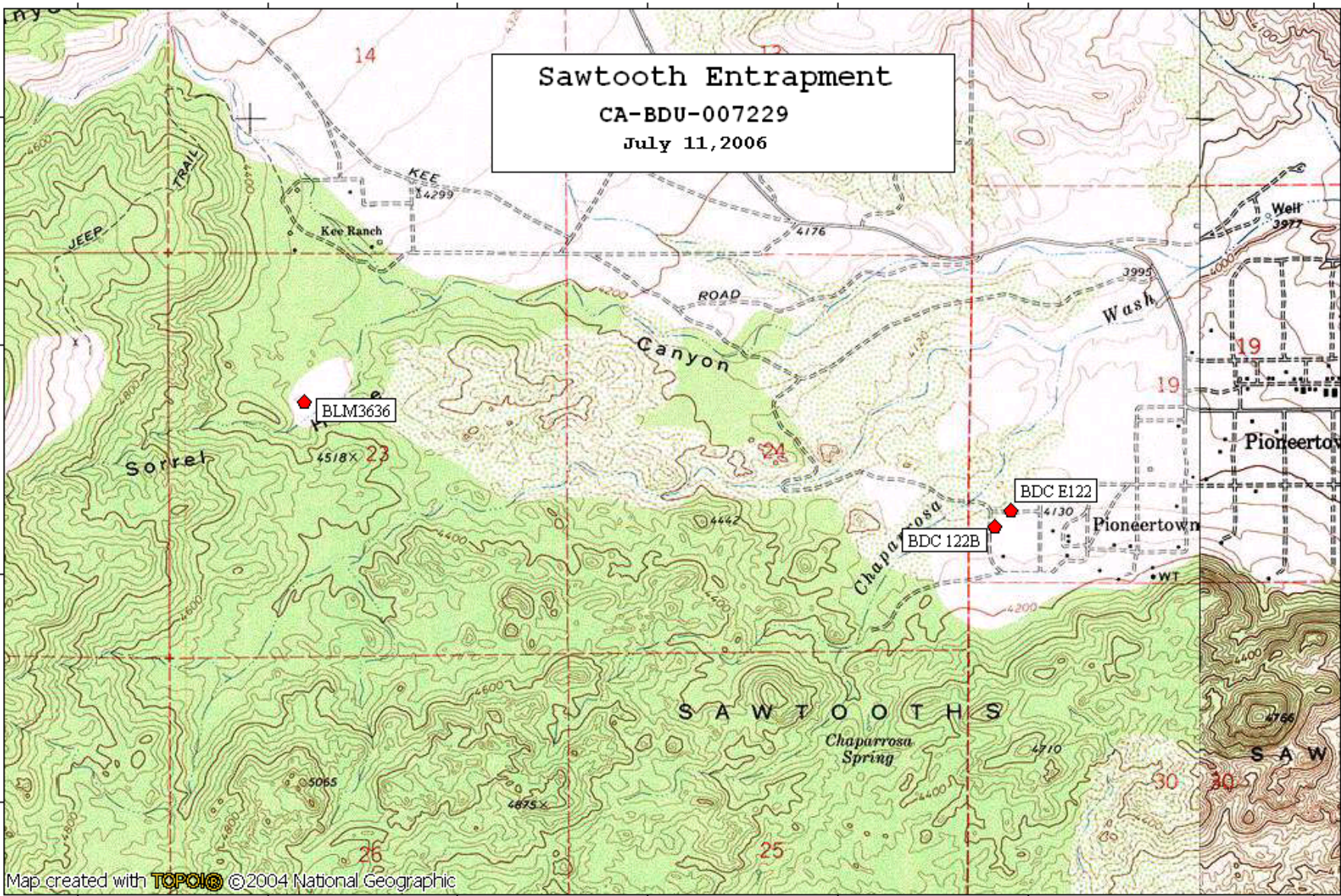
- Continue to re-evaluate fire weather and current burning conditions.
- Line supervisors need to continually weigh risk versus benefit in their strategy and tactics.
- Review the practice of taking refuge inside fire engines and vehicles as a last resort while in light flashy fuels during fire suppression activities.
- Review the practice of taking refuge in structures as a last resort.

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34°10'00" N
34°09'30" N
34°09'00" N
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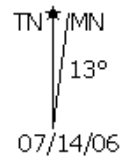
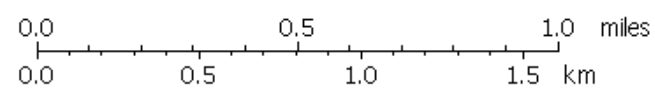
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Sawtooth Entrapment
CA-BDU-007229
July 11, 2006



Map created with **TOPIC** ©2004 National Geographic

116°33'00" W 116°32'30" W 116°32'00" W 116°31'30" W 116°31'00" W 116°30'30" W WGS84 116°29'45" W



- Lookout
- Communications
- Escape Routes
- Safety Zones