



LESSONS LEARNED

Ozena Lightning Strike Los Padres National Forest CA-LPF 2011-2382 Lessons Learned Review

Summary of Incident

On the night of September 9, 2011 the Los Padres National Forest experienced weather conditions that brought thunder and lightning. On the morning of September 10, 2011 both the Santa Lucia and the Mount Pinos Ranger Districts had reports of several fire starts and enacted their Lightning Operations Guide.

The Mount Pinos Ranger District (MPRD) detected numerous Type 5 size fires. The District's Division Chief assumed area command as the MPRD Lightning Coordinator and requested additional resources to support and suppress these fires.



Image US Geological Survey/Accident site and recorded Lightning Strikes

On the morning of September 13, 2011, the Ozena engine crew had their morning briefing via a phone conversation with their Battalion Chief, who was acting as Operations for the MPRD Lightning Plan. This briefing covered: their mission for the day, the weather forecast, Communications plan and emergency medical procedures. They completed their daily engine safety check, re-outfitted their engine with hose, and had a lunch break.

One of the Forest's Type II Hand Crew was assigned to support the district. They received their morning briefing directly from the MPRD Lightning Coordinator and were assigned to stage at the Ozena Station for the shift.

After lunch the captain decided to go in service with the engine (a crew of four), and their station utility truck, to an observation point approximately 4 miles south of the station. Three members of the hand crew (Crew Boss, Crew Boss Trainee, and AD fire fighter) drove their pickup truck to the same location on Highway 33, to observe potential lightning strikes.



Vehicles parked at Observation Point



View from Observation Point

While at the observation point the Engine Captain and two members of his crew were outside the engine, at the edge of the turnout, observing lightning strikes to the North and East. The Engineer remained seated in the engine. Two members of the Type II Crew were seated in their truck and one was seated on the edge of the bed of the truck.



Positions of Type 2 hand crew overhead

From their location the weather observations to the North and East showed active thunder cells passing over the Badlands. They observed a few lightning strikes in the distance. Within 15 minutes of their arrival to the observation point, they experienced light precipitation and the engine operator reported seeing a bright flash of light to the left of the engine's location.

The engine operator was momentarily blinded by the flash. Within seconds he was able to focus and observed his Captain and crew on the ground. The Captain stated he thought he had been struck by lightning and the HT radio from his belt was found several feet in front of him.

The Crew Boss was also on the ground next to his truck. He was unsure if he was knocked to the ground by the energy released by the lightning or if in response to the flash he moved to the ground.

The Engine Captain, one of his fire fighters, and the crew boss of the Type II crew suffered the effects of a nearby lightning strike, with no direct hit to any of them.



Positions of the engine crew after the strike.

The crew boss trainee (EMT qualified) quickly evaluated the down fire fighters, and made a decision that the area was unsafe. The fire fighters returned to their vehicles. They made a 911 call where the operator was unfamiliar with the geographical area. There was also a radio call made to the MPRD Lightning Coordinator with emergency traffic and notification of a firefighter being injured from a lightning strike. Los Padres Emergency Communications Center (LPECC) overheard this communications and assisted the Coordinator with initiating an emergency response with Ventura County Fire Dispatch. All vehicles returned to the Ozena Fire Station to evaluate injured personnel, provide medical treatment, and await transportation by ground and air.

Evaluation from medical personnel found the chief complaints were: tingling in arms, dizziness, disoriented, burned hair on arms, headache, and feeling strange. One firefighter was transported by air to Ventura County Medical Center, one firefighter was transported by ground ambulance to the same hospital, and the third was transported by ground ambulance to Kern County Medical Center (KMC).

The medical responses included units from USFS, Ventura and Santa Barbara County Fire, Ventura County Sheriff, and the California Highway Patrol (CHP).

One fire fighter was treated and released the same day. The captain and crew boss were held overnight for observation and released the next morning. All three fire fighters were released to perform their normal fire fighting duties.

Following his first shift one fire fighter returned to the hospital for further evaluation and again was released with restrictions for one to two weeks.



Red Cross marks the Accident site

What Went Well

- Coordination with other agencies
- Ventura Air Squad 9 arrived within minutes with a doctor on board
- The Forest successfully activated patient advocates to meet employees at both hospitals
- The Forest made immediate notification to family members
- Communications between the lightning coordinator and LPECC were excellent
- Having two EMT's on site provided employees with immediate medical care. One of the EMT's also took charge of the incident.

Suggestions to Consider for Improvement

- Post Forest Emergency Medical Plan on forest web site
- Reference Forest Emergency Medical Plan in Lightning Operations Guide
- Ensure Emergency Medical Response Plan is current in respect to Ranger Districts
- Consider adding Automatic External Defibrillator (AED) for remote stations
- Consider purchasing lightning distance indicators such as: Strike Alert
- Better coordination between Critical Stress de-brief and Lessons Learned review should be examined closer to minimize employee stress.

Lessons Learned by Review Team

- Be cautious when viewing lightning detection maps as they may not be all encompassing
- Caution should be used when utilizing 911 Cell Service. Cell service does not always go to the closest EMS Communications Center, but may be routed to a CHP Dispatch Center
- Employees may require monitoring for long term health conditions associated with lightning related exposures

Lessons Learned by Employees

- Evaluate if there is a need to exit your vehicle to observe down strikes. Staying in vehicle is a valid option.