

GREEN SHEET

SUMMARY REPORT



Oroville Airport Incident Aviation Fuel Vapor Explosion & Firefighter Burns

**September 4, 2009
CA-BTU-010502**

This Preliminary Summary Report is intended as an aid in accident prevention, and to provide factual information from the first 24 hours of the accident review. To that end it is published and distributed within a short time frame. Information contained within may be subject to revision as further investigation is conducted, and other reports and documents are received.

SYNOPSIS

On the morning of September 4, 2009 at approximately 1057 hours Butte County ECC dispatched City of Oroville Fire Department and Butte County Fire (Cal Fire) to a reported plane crash with fire at the Oroville Municipal Airport.

NARRATIVE

Upon arrival units found a single engine aircraft fully involved in fire off of the main runway in light vegetation which was also burning at a slow rate of spread. Both occupants of the aircraft, a male pilot and female passenger, had self extricated from the wreckage and were being treated by Butte County Sheriff Deputies and EMS Personnel from First Responder Medical Services. OFD Engine 111 with a crew of three; (Captain, Engineer and Intern Firefighter) were assigned to extinguish the aircraft fire while OFD Engine 112 with a crew of two (2 Engineer's) and Butte County Fire Engine 71 with a crew of three; (Engineer, Firefighter and Seasonal Firefighter) were assigned to perform mobile fire attack on the vegetation fire. OFD Chief 1 established Airport IC and assigned OFD B-10 as ISO.

Forward progress on the vegetation was halted using direct attack and both flanks of the fire were contained. The firefighting efforts on the aircraft were progressing well with the body of the fire extinguished utilizing foam and water. There were two minor flare-ups when water from the handline contacted the magnesium engine components. There was a persistent fire on the left wing and the handline crew consisting of the Fire Captain backing up the Intern-Firefighter (IFF) on a 1" reel-line made their way from the nose of the aircraft to the tip of the left wing. The crew began applying water/foam to the wing in a 20% fog pattern and then adjusted the pattern to a full straight stream to reach an area of persistent fire under the wing. When the IFF adjusted the pattern the straight stream penetrated the weakened aluminum skin on the wing which resulted in a large fuel/vapor explosion. This fuel/vapor ignited in a fireball approximately 20' in diameter and covered both firefighters in burning aviation fuel. Several fire personnel who were witnessing the event observed flames of 1-2' rising from the surface of the burning firefighters.

The Captain reacted immediately grabbing the IFF by the collar of his PPE coat and pulling him back at which time the FF dropped the nozzle turned to his left and ran towards the engine. The Fire Captain immediately retrieved the nozzle and began extinguishing himself at which time one of the engineers from OFD Engine 112 ran over to assist, grabbing the nozzle from the Captain and extinguishing the remaining fire on the Captains back and arms.

The Captain and Engineer both then followed the still burning IFF to the engine instructing him to get on the ground. As the IFF turned in the direction of the handline crew directing him, he reached up with his right hand and lifted his face piece off of his face while simultaneously removing his helmet/nomex hood with his left hand. As the IFF was still actively burning it is believed that this action resulted in the 2° burns to the right side of his face, neck and ear.

The IC, a Battalion Chief from CalFire who had arrived at the scene and was standing next to the command vehicle and each of the engine crews extinguishing the vegetation fire witnessed, heard and/or felt the explosion which caused them to turn in the direction of the explosion. As a result of this, each of the engine company personnel immediately reacted and ran to aid the two firefighters. The second Engineer from OFD Engine 112 retrieved an EMS bag and began rendering aid to the burned firefighters. Airport IC witnessed the explosion and resulting fire on the personnel and immediately announced "emergency traffic" over the command channel and requested two additional ground ambulances, an air ambulance and an additional engine company to the scene.

Upon evaluation by medical personnel the decision was made to airlift the IFF to UC Davis Burn Unit while the Fire Captain who was less seriously injured would be transported to UC Davis Burn Unit by ground ambulance.

Both the Fire Captain and the Intern Firefighter sustained 1° and 2° burns to their face, ears and neck. Upon interviewing both personnel it was determined that the Intern-Firefighter was wearing full PPE/SCBA but due to the close proximity to the fire and the action of removing the face piece helmet and nomex hood while still actively burning resulted in the extensive burns. The Fire Captain was wearing his SCBA/face piece, turnouts and helmet but was not wearing his nomex protective hood. It is believed that two key factors played a role in the Captains burns being less severe; first, the Captains quick reaction in jumping back from the fire and second was the quick reaction to extinguish him self with the handline. Both firefighters received prompt medical treatment which also interrupted the burning process on their skin. Both Firefighters were treated and released the same day but remain off duty due to their injuries.

RECOMMENDATIONS FOR IMMEDIATE CORRECTIVE ACTIONS

Have adequate resources available to support all emergency operations at all times. All personnel engaged in firefighting operations must wear the full and appropriate level of personal protective equipment. Gain a full knowledge of firefighting foam application, to include that fact that foams are ineffective at combating a dynamic or "running" fuel fire. Firefighters must be aware that introducing foam/water directly into any fuel tank will have similar results and should never be undertaken. Instill in newly trained firefighters the importance of remaining clam under stressful situations as it may mean the difference between minor and serious injury. Maintain Situational Awareness and know what the fire is doing at all times.