Plumas National Forest
LESSONS LEARNED

Date/Time: September 19, 2009 PST 1747
Accident: Fractured wrist from helicopter water drop

Synopsis: The Silver fire was detected on the Plumas National Forest at 1444 on September 19, 2009 in the Silver Lake area near the community of Meadow Valley. An immediate initial attack response occurred to the rapidly moving heavy timber fire. Numerous engines, handcrews and aircraft were dispatched to respond in the first few hours. The Plumas Hotshots were one of the first crews dispatched and arrived at approximately 1700. Five helicopters arrived over the course of the first 3 hours, represented by two Bell 212's, 1 S58T and two Skycranes. Work by the handcrews was concentrated down near the heel of the fire as they anchored and proceeded up both flanks. The Plumas Hotshots were working in Division Z and getting water support from multiple helicopters. Communications and coordination between the crew and the helicopters was good with the local forest ship, (H512) and the Chester helicopter, (H-510). Communications with the limited category aircraft from Chester, N58AH, the S58T was not good initially, but after a call to the Air Attack, (ATGS) communications improved. Activity was very hectic with congested frequencies and quick turnaround times on the aircraft.

About 45 minutes after Plumas Hotshot's arrival, a drop from one of the helicopters was announced as coming in, but with very little time to react or clear the area. Three crewmembers got behind a tree to shield themselves, when a piece of a 16" DBH cedar snag hit one of the crewmembers on the wrist, fracturing it. The entire snag was knocked down by the drop and fortunately the crewmember was not struck directly by the entire snag. The information from the crew was conflicting on which helicopter was involved in the drop, narrowing it down to either of the Skycranes or possibly even the S-58 which was using a bucket. As the intent of this Lessons Learned is not punitive in nature, further investigation into what aircraft was definitely involved did not occur, as the lesson learned will be applicable to all of the aircraft.

This Lessons Learned was developed with the help of the Helicopter pilots, IHC Crew Superintendent, Forest Deputy Fire Staff, Regional Fireline Safety Officer, South Zone Training Officer and the Regional Aviation Safety Officer. Our goal is to increase forest/region-wide awareness to this type of accident.

Lessons Learned:

1) Aviation resources must maintain positive contact with ground forces. Make sure the ground resources are aware of where the drops are going and that the area is clear of all people before continuing mission. If you cannot assure that the area is clear, or if you see someone in the drop area then don't make the drop.

2) Ground forces need to be readily available on the radio on the assigned air to ground (A/G) or agreed upon frequency when working around aircraft. Dedicate one person for that A/G responsibility, or at least setup the contact person's radio with A/G as the priority channel. Aircraft are often delayed unnecessarily because they cannot raise the appropriate ground resource to make sure everyone is clear. When communications with the aircraft are inadequate, call things off through the Air Attack until positive communications are obtained.

3) Air and ground resources need to constantly evaluate the necessity of and capabilities of the aircraft in use. Questions that need to be asked are: Are we trying to work too many aviation resources in too small of an area? Is the drop cycle of the aircraft too quick for the ground forces to get in and do the line construction work that they need to get done? Are we using the right tool for the job? If this is the case, consider moving the aircraft further ahead of the ground crews to reduce risk. Would it be better to move Type I aircraft away from the ground resources and work the small capacity aircraft in support of the crews?

4) Constantly evaluate the distance of drop safety zones, in relation to size of aircraft and volume of water being dropped. Slope, topography and heavy canopy cover can be significant contributing factors. It is important to remember that the canopy restricts the ability of pilots to visually check that the area is clear of people.

5) Don't get so focused on the initial attack objective of keeping the fire small, that you lock on the target and lose awareness of the ground forces. Quick turnarounds and visible knockdown power with each pass of the aircraft can contribute to this problem.

6) Pilots need to remember that the load of water or retardant that they are dropping will have a forward velocity equal to the speed of the aircraft when it dropped. They need to be at a height above the vegetation that allows the forward momentum of the load to dissipate before impacting the vegetation. This will result in a vertical descent through the canopy, rather then impacting the canopy from the side, possibly knocking treetops, limbs or snags loose.

7) All of the lessons learned above are appliciple to airtankers as well as helicopters and need to be adhered to by both.