

# **Constantia Fire Burn Injury Non-Serious Accident Investigation Report**



Prepared by Nate Gongga, (Review Team Lead), Bob Knutson and Mike Boomer

07/28/2010

\*\*\*Individual pictured was assigned to the Constantia Fire while the Investigation Team was at the fire. \*\*\*

## **Executive Summary**

At approximately 12:22 on 7/25/2010 a crewmember of the Diamond Mountain Hotshots was injured while working on the Constantia Incident, five miles south of Doyle California. The fire fighter was working on a tree torching near the line on Division T, fell and received minor burns to the left hand due to not wearing gloves.

## **Narrative**

7/24/2010 19:26- Fire first reported and initial dispatch of resources.

7/24/2010 20:19- Diamond Mountain IHC dispatched to incident.

7/24/2010 21:20- approximate arrival of Diamond Mt. IHC on incident.

7/25/2010 12:22- Crew notifies-DIVS to ICT3 (T) regarding burn injury to hand who immediately requests ambulance ground transport.

(helicopter was also ordered per District policy but was unable to take off due to thunderstorms/winds in Reno area).

7/25/2010 1231- EMT begins 25 minute walk w/injured, ETA ambulance also 25min.

7/25/2010 12:51- ICT3 (T) notifies Dispatch Diamond Mt. crewman has 1<sup>st</sup> and 2<sup>nd</sup> degree burns on 50% of the hand. Dispatch notifies Duty officer and reminds IC of Red Book Burn procedures. Injured transported to Renown Hospital in Reno with Agency representative following ambulance. Injured treated in Reno and later transported to burn Center in Davis California.

7/2/10 1000 injured crewmember released to home from UC Davis Medical Center.

## **Investigative Process**

A three person BLM Fact Finding Team conducted the review. The process included interviews, verification of documentation, and a visit to the site where the injury occurred.

Team Lead: Nate Gogna, BLM California State Office, Fire and Aviation

Safety Manager: Bob Knutson, BLM Nevada State Office, Safety

Fire Operations Specialist: Mike Boomer, BLM Nevada State Office, Fire and Aviation.

## **Findings**

### **Finding #1:**

BLM Work/Rest Guidelines were adhered to.

**Discussion:** The crew last had a fire assignment 35 days previous and had been taking regular days off during that period. The crew had worked a full shift at their station on 7/24/10 prior to being dispatched to the incident. The crew was dispatched to the incident at 20:19, arrived approximately one hour later and worked until approximately 01:30 on 7/25/10. They were back on at 0730 and the incident occurred at approximately 12:20. These hours are not excessive during initial attack and fatigue was not an issue.

### **Finding #2:**

Injured firefighter was not wearing gloves when burns to hand occurred.

**Discussion:** Firefighter was attempting to assist saw squad to remove tree that was flaring up adjacent to completed fireline. Firefighter had removed gloves earlier and not

put them back on. While pulling on branch of tree limb on uneven ground, branch broke causing firefighter to lose balance and put hand down into hot ashes.

**Recommendation:**

Assure all fire crew members are appropriately wearing all Personal Protective Equipment (PPE), including gloves during fire suppression activities

**Finding #3: Discussion:** Briefings to firefighters from all levels do not consistently include PPE

**Discussion:** The Briefing during initial attack was very limited and the briefing from division on day two was more complete, but neither included PPE use. It is assumed that organized crews will brief and monitor PPE use as well as individual personal responsibility for PPE. The internal crew briefing for this incident did not specifically include PPE use either.

**Recommendation:** Include PPE use reminder at briefings from all levels of supervision.

**Finding #4:** The crew Standard Operating Procedures (SOP's) and Job Hazard Analysis (JHA's)/Risk Assessments (RA's) were not followed as well as agency policy and procedures.

**Discussion:** During crew training and in agency training session's employees are taught to remove gloves during cold trail tactics. Also during mop-up operations firefighters are also taught to remove gloves to find and feel for heat sources. When engaged in all other activities gloves should be worn by all employees.

Diamond Mountain IHC's SOP's related to PPE use were covered during their annual fire refresher. Crew JHA/RA's were reviewed for all tasks relating to this review. Completed JHA/RA's stated that all personnel are required to wear gloves during these tasks.

In accordance with the Interagency Standards for Fire and Aviation (Red Book), Required Fireline PPE includes in addition to other items, leather gloves.

**Recommendation:** If the crew, field office and state office program leaders are going to allow personnel not to wear required PPE then JHA's and program SOP's should state what activities and tasks are found to be acceptable. It should also be documented and briefed to personnel which task these are. Train and educate employees that some tasks are conducted without PPE and these tasks should be approached with extreme caution, due to the risk of injury or burns during certain situations on the fire line.

Red book PPE standard page 07-8 thru 07-12 does not state when is appropriate and when is not appropriate for glove use. All other required PPE components have a paragraph stating what is acceptable or positions that require a specific PPE item. It is recommended that the Red Book address this issue for gloves as well.

**Conclusions and Observations**

The Diamond Mountain Interagency Hotshot crew was engaged in direct line construction operations on the Constantia Fire. The injured crewmember was extremely fortunate that his injuries were not worse. Only three days were lost due to the injury and

at this time employee is back at work. Direct line construction remains one of the highest risk activities firefighters undertake in the accomplishment of their jobs. All employees of the Bureau of Land Management and the wildland fire service should be extremely mindful of what PPE they are using and when to have it on.

The wildland fire environment is constantly changing and so are the tasks that crews are asked to engage in. With that in mind, leaders need to be aware of what task their employees are engaged in at all times. Leaders should ensure their employees are following all agency policies and procedures related to the task they are performing. Employees are also to be mindful of the situation they are in and what task they are engaged in. Employees have a responsibility to themselves, their families, the agency and their leaders to follow all agency policies and procedures related to the operations they are involved in. These policies and procedures are in place for their safety and the well fair of the agency.

This incident should serve as an important lesson learned to all personnel engaged in fireline activities to utilize proper PPE. This was a minor injury but could have been much worse.

Even if the injured firefighter was wearing gloves hot embers and material would have possibly got into his gloves and burned some portions of his hand. Wearing gloves may not have prevented all burns in this situation, but at least would of lessened the severity of the burns.

**Two other observations were recognized during this review that is not directly related to the burn injury of the IHC crewmember but need to be identified:  
Finding**

BLM employees are regularly not wearing their gloves while engaged in fire line operations. One engine crew, five hand crews, one helicopter crew were observed on 7/27/2010 on this incident. Of those over 90% were observed not wearing gloves. A Team member spoke to many personnel on why they don't wear gloves and a few consistent comments came up: These included:

- Gloves issued are uncomfortable
- Gloves provided don't fit well and are odd shaped most of the time
- Gloves provided don't allow me to feel things, and don't breathe well
- Gloves provided hold moisture which leads to blisters and loss of grip of tools
- One individual identified fiberglass handled tools that many crews use, having a poor grip with provided gloves
- The task I'm performing needs a bare hand to feel for heat, could be cold trailing, mop-up, or searching for heat sources

**Recommendation**

BLM fire operations group look further into these findings and make recommendations to how we ensure everyone is following PPE protocols. Health and Safety committee push forward information to the equipment development team on researching new products for

fireline personnel to use. The gloves issued have been the same for twenty plus years. Can other products be developed/endorsed that meet the needs of firefighters and management?

**Finding**

While the burn injuries to the IHC crewmember turned out to be minor, compliance with the Burn Injury Protocol was excellent. This was nearly a perfect example of how to execute this procedure. All parties involved should be commended.

**Recommendation**

Conduct an After Action Review of this procedure when time is available, to see if every process was covered. It is recommended that this incident be shared with Lessons Learned Department, Annual Refresher Development Team, or at the request of anyone having interest. Commendation letters be issued to all employees involved, see review file for specific individuals involved.