

Las Conchas Fire Rock Injury

Non-Serious Wildland Fire Accident Investigation and Lessons Learned Review



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For:

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Introduction:

On July 2, 2011 at approximately 1345 hours, while preparing for a burnout operation on the North Zone of the Las Conchas Fire, a member of the BLM Craig Interagency Hotshot crew was injured when a large boulder broke loose on a hillside, causing other rocks to roll down slope, with one rock landing on him and pinning him to the ground. The first boulder, the size of a “Volkswagen Beetle”, was successfully avoided but another rock, measuring 2' x 2', hit the crewmember pinning him to the ground. The first crewmember on scene moved the rock off the patient.

The patient was immediately evaluated by fireline EMT's with the decision made to transport him via short-haul helicopter due to the nature of the injury and steep terrain where the crew was located. The patient was transported to Christus St. Vincent Regional Medical Center in Santa Fe, New Mexico.

The purpose of the Non-Serious Accident Investigation (NSAI) is to:

1. Identify facts of the events and develop a chronological narrative of the event;
2. Identify what was learned and what should/or could be done differently in the future; and
3. Identify any recommendations, as provided by the field personnel and safety officer that would prevent or mitigate similar occurrences.

The purpose of the Lessons Learned Review (LLR) is to:

1. Gather the facts of the events to develop a story of what occurred;
2. Use the stories provided by those that were involved to develop a storyline and timeline;
3. Identify what was learned and what should/or could be done the same of differently in the future to prevent or mitigate similar occurrences in the future.

Investigation Process:

Due to the low complexity of the accident, Reinarz T1 Incident Management Team in collaboration with the Bureau of Land Management and Forest Service Southwestern Regional Fire and Aviation Management staff decided to utilize an on-site After Action Review (AAR) to develop a Non-Serious Accident Investigation and provide a Lessons Learned approach to gather pertinent information from witnesses and fireline personnel. This would further establish the chronology of the event, what happened, lessons that were learned, and recommendations for improvement or prevention of future similar incidents. This as an attempt to identify both the successes and challenges that occurred on this incident to provide immediate lessons learned and recommendations for future events.

Background:

The Las Conchas Fire started on June 26, 2011 on New Mexico State Forestry jurisdiction, Bernalillo County, 13 miles southwest of Los Alamos, New Mexico. A local Type 3 Incident Management Team assumed command of the incident. A request was made to the Southwest Coordination Center, for additional resources and transition to a Type 1 IMT. An initial Delegation of Authority was issued to the Southwest Reinarz T1 IMT. The fire continued to burn on several jurisdictions including, Santa Fe National Forest, Bandelier National Monument, Los Alamos National Laboratory, and Santa Clara Pueblo (Bureau of Indian Affairs).

At the time of the incident, Reinarz T1 IMT had management responsibilities for the North Zone of the fire including the Santa Clara Pueblo, where the incident took place. Hughes T1 IMT was on the south end of the fire with Morcum T1 IMT on the northwest side and overall management provided by Oltrogge's Area Command Team.

Chronology of Events – July 2, 2011:

The following chronology is provided to set the stage and describe the actions taken by parties involved in this incident.

1345: Two Interagency Hotshot crews prepare the fireline for burnout operations when a large boulder broke loose after a log, horizontal to the slope, burned through, causing the boulder to roll down the hill, causing other rocks to roll down the slope. Both crews were working towards each other on the line at the time.

1345: One crew yelled, "ROCKS" repeatedly to warn everyone of the danger when they saw and heard the rocks above them. The adjacent crewmembers, which were on the same line with the other crew, but directly below the rocks, could hear the warning yells over their crew radio net but their vision of the rocks was obscured by oak brush.

1345: The first large boulder, the size of a "Volkswagen Beetle", was successfully avoided but another rock, measuring 2' x 2', hit a crewmember, pinning him to the ground.

1350: The first crewmember to reach the patient moved the rock off the patient.

1350-1355: The first Emergency Medical Technician (EMT) was with the patient within one minute and additional EMT's from the crew were on scene within five minutes of the accident.

1355-1618: The crew net channel was cleared for the medical emergency and the EMT's began their assessment of the patient. The Command Channel was cleared by the Division Supervisor (DIVS). Patient vital signs were stable. The initial request was for an ambulance to respond but was upgraded to a helicopter short haul mission by the DIVS due to the mechanism of injury. A satellite phone was brought into the mix to aid in communications with Incident Communications and medical personnel at Incident Command Post (ICP).

1418: A cervical collar was in place, the patient's legs were splinted, the patient secured to a backboard and placed in a SKED. The patient was then moved away from the rockslide area.

1425: The incident short haul helicopter was performing their size up from the air.

1455: The patient was packaged for transport by short haul personnel.

1523: The patient was transported via short haul to the landing zone where the helicopter could land and be re-configured to transport the patient to the hospital internally.

1532: The helicopter left the landing zone with the patient internal, en-route to the Regional Medical Center in Santa Fe, New Mexico.

1602: The injured firefighter arrived at Christus St. Vincent Regional Medical Center in Santa Fe, New Mexico.

Discussion:

This section will discuss in further detail the circumstances surrounding the event and its outcome. This represents information gathered through interviews and during the After Action Review (AAR) conducted with witnesses to the accident and subsequent crew members. Information was also obtained from the crew superintendant and Line Safety Officer. The injured patient provided input to the AAR from the hospital and his account was the same as the information provided by the others. He also felt that his onsite medical care was good and that the transport went smooth and was timely and efficient regarding the remote area he was in.

The two crews were working towards each other, with one crew cutting direct line to the left of the crew with the injury, who were cutting indirect line across an unburned finger. The morning crew briefing had covered working in steep rocky terrain with fire above them, working in proximity of other crews, and that the crew had Low Angle Rescue supplies with them on the line. At the time of the incident, the crews were in communication with each other and a meeting point established between the two crews where the Crew Bosses had met.

The Division Supervisor stated that the first large boulder broke loose when a log, horizontal to the slope, burned through. He stated that there was nothing they could have done to prevent the accident other than not being on that piece of ground. In old fire scars, there are thousands of logs that are horizontal to the slope, holding back all sorts of things. He also mentioned that developing a policy of no fire fighting in steep, rocky, burned over country is not practical in his opinion and that firefighting is a hazardous profession and not all the environmental risks can be mitigated.



Location of
rock injury.

**Fire line where the crews were working when the incident occurred.
(This photo was taken the next day after crews had burned out from the line.)**

The large boulder rolled down the steep incline, loosening other rocks as it rolled. Although the crewmembers were able to dodge the initial large boulder, due to the warnings provided, a smaller rock pinned the individual who did not have time to dodge the smaller rock. Although the crew could hear the warnings, due to the oak brush, they could not actually see the boulder and rocks until they were right on them. The rock was approximately 2 feet by 2 feet and was removed from the patient by a nearby crewmember. EMT's were on the scene immediately to provide evaluation and stabilize the patient. An immediate decision by the Division Supervisor was to transport the patient via helicopter short haul due to the nature of the injury (possible femur fracture on first assessment).



Rock that pinned the injured crewmember.

The crews that were on scene did an excellent job in assessing, handling the patient and preparing in-patient packaging, which decreased the scene time for the short haul personnel (the short haul pickup point was approximately 30 feet from the accident location on the steep rocky slope). The crews had the EMT's, c-collar, backboard, and SKED with them. Crew personnel took photos of the accident site and a NIFC photographer took photos of the short haul extraction. Communications followed the ICS 206, Block 8 (Dutch Creek) for obtaining initial information from the point of contact.



Short Haul bringing patient to the landing zone (LZ).



Securing patient from short haul in the LZ.



Helicopter at landing zone after completion of short haul .

An After Action Review (AAR) was done as soon as possible involving the Helitack, IHC's, and Incident Management Team with statements obtained from those who were involved including the injured crewmember. The Safety Officers (2- T1 and 1 SOF(t)) met with personnel involved at 1845 at their spike camp and conducted the AAR . The injured provided his input for the AAR from the hospital.

Lessons Learned:

1. The IMT Incident Emergency Plan (IEP) (Incident-Within-The-Incident) worked well. The IMT has drilled the implementation of the IMT's IEP with scenarios for Command and General Staff and Operations. During the 2011 fire season, to date, the team had actual implementation of the IEP three times prior to this incident. While the prior incidents turned out to be relatively minor in terms of patient status, those incidents provided the opportunity to learn from each one to improve the implementation of the IEP for this incident.
2. The IMT needs to make sure that the ICS 206 shows the capability of the medical resources available. On this incident, the ICS 206 did not show the medevac helicopter was also short-haul capable. This may have delayed the initial request for a short haul.
3. The IMT needs to continue to train and drill with incident communication personnel. This can be a challenge as Radio Operator's are not assigned to the team and those that are assigned have a variety of experience and backgrounds. (Although on this incident the RADOs performed well).
4. The crews involved felt that understanding the short-haul process was important. The crews who had short haul experience felt less stress than the crew that did not understand the short-haul process. (Initial recon, power checks and size-up, landing to reconfigure for short haul, insertion of short-haul personnel, recovery of short-haul personnel and patient, landing to reconfigure for patient transport inside the ship).
5. The After Action Review with the crews involved also expressed that the agencies are not supporting the crew medic concept with medical control, IV capability, etc.
6. The IMT will continue to assign line medics to divisions based on access, division assignment and medic availability.

An AAR with Incident Communications was also conducted – Lessons Learned Include:

1. Best practice is to turn communications over to ICP medical personnel when talking with medical personnel with the patient.
2. The communications room needs to be cleared of non-essential personnel with no side conversations in the room.
3. The IMT must ensure that whenever air transport is requested, that secondary ground transport is also provided as a backup plan as close to the accident site as possible. This was done initially but then that ambulance was diverted to the helibase before the patient had been transported to the hospital via helicopter.
4. The use of satellite phone at the scene of the accident aided in communication.
5. Additional fire priority traffic can be considered by Communications depending on the situation. During this incident, ATGS called to advise of a weather alert of a large thunderstorm approaching the fire. ATGS was denied air time for this alert. The AAR with Communications determined that depending on the situation and status of the initial emergency, that other critical information could be disseminated over the Command frequency in a controlled manner and not jeopardize the incident within the incident.

An After Action Review with the Helitack Crew was also conducted – Lessons Learned included:

1. The presence of a helitack crew managing the dip site below the accident site expedited the construction of the helispot and control of the helispot.

2. The presence of this helitack crew aided in the reconfigure process and transfer of the patient into the helicopter.
3. The emergency was not communicated to ATGS in a timely manner.

Recommendations:

1. Advocate that IMT has a current and Incident Emergency Plan (IEP) that is known by all and information validated. This would include the inclusion of any short haul or hoist capable helicopter.
2. Practice scenarios during training for any Incident-Within-An-Incident in preparation for the fire season. This would include the inclusion of any short haul or hoist capable helicopter.
3. Encourage the National Wildfire Coordinating Group (NWCG) to establish standards to incorporate higher level medical responders within crews, engines, and Initial Attack organizations to be more responsive and effective in emergency medical responses.
4. All Incident Management Teams should pre-position ambulance(s), and/or other appropriate resources, at strategic locations suitable to timely access to all areas of the fire in a medical emergency. This information should be posted in the ICS-206, Block 8, to adhere to the protocols established in NWCG #025-2010 Memorandum. (<http://www.nwcg.gov/general/memos/nwcg-025-2010.html>)
5. Institute a periodic inspection schedule for trauma kits.
6. Encourage hand crews, engine crews, Incident Management Teams, and Dispatch Centers to simulate medical emergencies to enhance proficiency. These simulations should also include the use of various evacuation techniques and equipment (such as short haul or hoist capable helicopters) to accommodate factors such as limited personnel/or equipment, topography, weather, fire behavior, and time constraints.