

# **Snow Gate Inc. #554**

*(August 25, 2011)*

*Facilitated Learning Analysis*



**Sisters Ranger District**

**Deschutes National Forest, OR**

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## ***Summary***

The Snow Gate Facilitative Learning Analysis was requested by the Sisters Ranger District, Deschutes National Forest, District Ranger on August 27, 2011. An FLA team was assembled to help firefighters, the district and the forest identify lessons learned that could prevent like injuries in the future.

On August 25, 2011 during the initial attack phase of incident #554(Snow Gate), a firefighter was struck by a burning snag during line construction activities. The firefighter was evaluated by an EMT and evacuated by ambulance to the nearest hospital. His injuries consisted of a broken scapula, two broken ribs, two fractured vertebrae and a sprained ankle. He was released from the hospital on August 27, 2011.

This FLA will focus on the lessons learned from fire pre-planning, engagement, and an Incident within an Incident.

On August 28<sup>th</sup> the Sisters District Ranger delegated authority to the FLA team to help firefighters share their story and lessons learned on the Snow Gate Fire.

## *Time line*

**August 25, 2011**

- 0704** Field Observer (FOBS) in-service to locate Inc 554.
- 0715** ODF dispatches Protection Officer (PO) to Inc 554
- 0730** Hand crew (HC) in-service
- 0751** PO ties-in with FOBS at incident. IC identified to dispatch. IC requests HC respond to incident 554. FOBS begins check line construction on 554
- 0820** HC en-route to 554
- 0830** IC briefs HC on Hwy 242
- 0840** HC engaged on incident and begins line construction from anchor. Flanking action to the East with firefighter #1 and #2 (saw team 1) and to the West with firefighter #3 and #4 (saw team 2). East line is completed and saw team 1 moves to the West side to assist line construction with saw team 2. FOBS continuing line construction on South line.
- 0930** AFMO visits with IC(t) to discuss concerns, objectives, prioritization. Helicopter on-scene for bucket work
- 1005** Medical emergency called in to dispatch. At about this time IC(t) heard a snag fall.
- 1020** Incident within an Incident (IWI) IC in radio contact with responding EMS. Patient triage underway by IWI IC who is EMT qualified.
- 1025** IC(t) continues fire suppression actions; FOBS and firefighter #6 working South line. Remaining firefighters assist in prepping patient for transport to the ambulance.
- 1035** EMS arrives at flag line and is briefed and walked in to the patient by firefighter #5.
- 1105** Patient en-route to Bend, St. Charles Medical Center.
- 1130** (approx) Air Tanker operations begin
- 1230** All firefighters re-group, brief and re-engage; safety officer and LEO on-scene.
- 1245** (approx) Air Tanker operations completed
- 1330** (approx) Near miss with another snag occurs on West line. IC gives direction to pick up the pace and finish West side line construction to get out of the snag hazard.
- 2145** PO at station, out of service
- 2200** HC at station

## ***Narrative***

### **Arrival on Fire- August 25**

Oregon Department of Forestry dispatched an engine to FS incident #554 at 0715. At 0730 they arrived on scene and the ODF protection officer (PO) from the Engine tied in with a field observer (FOBS) who was first on scene. The FOBS had previously given a quick size up of the incident to dispatch and requested the ODF PO take command of the incident. The location of the fire was considered to be an area of high risk of large fire, firefighter exposure, and high hazard conditions due to a large snag component (bug kill) and heavy fuel loading.

The fire was located in a visual corridor along Highway 242. After assessing the situation the ODF PO gave a size up to the local dispatch and at 0820 requested a hand crew and a type 3 helicopter for bucket work. An agency (USFS) hand crew that usually consisted of 10 people from the local district was dispatched. Due to leave and prior arrangements the crew was down to four. The district boosted the hand crew with experienced local militia from other district departments for a crew size of 6. The ODF engine was staffed with 2 people.

Fire size upon arrival was 1 1/2 acres, burning in two different fuel types at the top of the ridge, with moderate fire behavior, backing, and jackpots producing 5-6 ft flame lengths. While waiting for the crew to show up the IC continued gathering information and had his crewmember start a scratch line along the West side and the FOBS begin scratch line along the South side of the fire.

At approximately 0830 the hand crew arrived on scene and the IC hiked down to the Highway from the fire (1000 ft) and briefed them. The Incident Commander agreed with the HC Crew Boss that the incident had ICT4 potential and assigned him as the ICT4 trainee. By 0840 the crew was engaged on the incident. Snags were the biggest hazard and were discussed thoroughly during the briefing. While engaging the fire all personnel were continually reassessing the snags in the area and passing on the information of their locations to all resources. (See Figure 1)

Figure 1 (representative of snags in the Snow Gate area)



Upon establishing a good anchor point the crew broke into two saw teams and began to flank the fire cutting scratch line; saw team 1 on the East flank and saw team 2 on the West flank. The FOBS was on the South side finishing the scratch line along the ridge and was posted as a lookout once line was in place. Snags were coming down within the perimeter of the fire and situational awareness was high among all ground resources. The East side of the fire had less fuel loading and snags allowing saw team 1 to reach the ridge first.

At 0900 the lookout on the fire informed the IC that there was a small slopover on the South side of fire near the ridge and he was handling it. The Western flank had the most fire activity and hazards, so the IC decided to stay on the ridge top on the Western flank and act as a lookout. Saw team 1 completed the saw work on the Eastern side from the anchor point to ridge, and was instructed by the IC (t) to put in a scratch line back down from the ridge line to the anchor point and then proceed to assist saw team 2 on the Western flank. IC (t) was on Eastern flank with saw team 1 and helped with scratch line. Once completed he bumped approximately 80 ft down slope to tie in with the AFMO and discuss strategies.

Saw team 2, on the Western side, started at the anchor point working towards the ridge top and identified a pocket with heavy down fuels, a lot of heat and snags. Due to snags and fire intensity saw team 2 chose to go to the Western ridge line where conditions were not as hot and work down slope toward the anchor. A helicopter was providing bucket drops where fire intensity was problematic to the line, reducing fire intensity and allowing line construction to continue. Once saw team 1 tied into the anchor point they switched roles; the swamper became the sawyer, and the sawyer became the swamper. They began working up the Western flank toward saw team 2. They both recognized the fuel loading and snags that were a concern identified by saw team 2.

Fire intensity was at a level where they could proceed. They recognized, and made each other aware of a hazard snag approximately 12 feet off the line, with two fire weakened spots in the top half of the tree. The tree size was approximately 40 ft tall and 12-14 inches diameter at breast height (DBH). The sawyer bucked one down log and went to buck another; the swamper looked away from the snag to throw the bucked piece of log from the fire. The look out (IC) observed that the swamper from saw team 1 was removing a chunk of log from the line and then noticed the top half of the snag (~ 20 ft) break off and yelled "snag!" The snag fell on the swamper impacting him on the right shoulder and knocking him to the ground. The 20 ft portion of the snag that fell was approximately 9 inches in diameter at the largest end. All resources recognized that a serious accident had occurred and rushed to the swamper's aid. (See Figure 2 and Figure 3)



Figure 2 (located below Pulaski is a portion of the snag that impacted swamper)



Figure 3 (Remainder of fire-weakened snag that impacted swamper)

The patient was laying on his back with feet positioned down slope approximately 3-5 ft from fire's edge. The burning snag top that impacted him was lying next to him, still burning. At this time he had fire above him (by his head) and fire to the right of him (near his side). The responding firefighters quickly removed the burning debris next to him and contained fire spread from further impacting the patient. There were three EMTs (IC, IC (t) and a firefighter) on the incident. They all converged on the patient immediately. They deferred expertise and established that the IC was the most experienced to handle the patient and he became the commander of the incident within the incident (IWI). The IC (t) stayed in command of the fire and operations. Dispatch was notified by the IC (t) immediately following the incident. Dispatch initiated emergency medical response out of Sisters, OR. The EMT did patient assessment and recognized injury to the right shoulder and back. Two firefighters were instructed to retrieve a "c collar" and sked from the vehicles. The IWI IC (EMT) directly contacted responding EMS via radio advising them of the patient's condition and needs.

Two firefighters went to the vehicles for EMS gear; one packed supplies back to the patient and the other waited for EMS to arrive and lead them to the patient. EMS arrives at the incident around 1035 and by 1105 the patient is enroute to St. Charles

Medical Center in Bend, OR. The IC (t) and two firefighters continued fire suppression efforts utilizing air support while the remaining firefighters disengaged and took a break and regrouped at the vehicles. All firefighters briefed and re-engaged in fire operations at 1230. The Safety Officer and Law Enforcement Officer (LEO) arrive on scene for the investigation. After the Safety Officer and LEO depart the incident, another near miss occurs when a snag falls within 10 ft of a firefighter. Another lookout was posted and the IC gives direction for resources to complete the West flank line and exit the snag area. Suppression activities continued throughout the afternoon, and the decision was made not to staff the incident for night operations. All resources returned to station that evening.

## ***Lessons Learned***

### **Pre-planning at the management level**

Areas of concern pertaining to high risk for large fire, firefighter exposure, and hazardous conditions (Fire Management Guidelines) were mapped and identified in the Fire Management Plan. This information is shared at the management level laterally in documents and discussion. This information is not well understood vertically. (i.e. The latitude within the delegation of authority for the type 3, 4, 5, Incident Commanders).

- Explore opportunities to more effectively deliver leader's intent concerning management guidelines (hazard, risk and exposure areas) and concerns throughout the organization when implementing Fire Management Guidelines in these areas.

### **Pre-planning at the Initial Attack IC and Firefighter level**

Areas of concern pertaining to high risk for large fire, firefighter exposure, and hazardous conditions are known and communicated laterally and vertically clear down to the first year firefighter. Firefighters responding to the Snow Gate Incident were fully aware of the pre identified hazards of heavy fuel loadings and snags in this area.

- It is important that firefighters feel empowered in knowing what strategies and tactics are supported by management when it comes to the risk management/decision process.
- It is important that firefighters feel empowered to consult with upper management when faced with challenging risk management situations.

## **Engagement**

Due to the abundance of lightning from the night before, the firefighters were in a state of readiness for the upcoming initial attack activity. Upon being dispatched to the incident, the crew's local knowledge made them aware of the heavy fuel loading and snags in the area.

When the IC arrived he debriefed with the FOBS, provided dispatch with a size-up and ordered additional resources. Upon arrival, resources were briefed thoroughly; special emphasis was placed on the heavy snag component. All resources agreed it was a sound plan and engaged. Although there was a high exposure to snags, mitigation measures included identification and communication of hazards, posting lookouts, and identifying escape routes. Due to working relationships and clear communications there was a high level of trust and confidence within the group.

- Keep saw teams in pairs and work in locations where they can be observed by lookouts.
- Communicate hazardous areas when identified and make known to all.
- Exposure to firefighters needs to be commensurate with values at risk. The support and understanding of the strategies and tactics to minimize firefighter exposure to known hazards could be improved.
- Understanding the relationship between values at risk and firefighter exposure needs better definition from management.
- Aggressive firefighting that minimizes acres burned and firefighter exposure is the common preferred strategy. Efforts need to continue in connecting the understanding between management and firefighters of what other options are acceptable.

## **Incident Within the Incident**

The prior drills and training allowed those administering aid to act in a very efficient manner. There was no "panic" as they could relate to their training, prioritize needs, and take action. The familiarity with procedures, medical equipment and their roles resulted in a smooth operation. In addition, the three EMT's on the incident identified the highest qualified EMT and deferred to his medical expertise. The end result was the proper and timely care of one of our own.

- Prior training on medical procedures was instrumental in successful patient care and transport.
- The Central Oregon Fire Management Service (COFMS) EMT training program is effective for developing and maintaining EMT skills on initial and extended attack crews since the crews are most likely the first responder to a medical incident.
- It is important to identify and defer to expertise.

The Snow Gate leadership quickly identified a single person to take command of the IWI (Incident within an incident) separate from the Incident Commander of the fire. Dispatch was notified and the frequency was cleared for emergency traffic. This resulted in clear communications within the incident and for responding emergency service personnel. The hazards and operations associated with the fire itself were managed by the IC (t). Patient assessment and care were managed by the commander of the IWI.

- Separation of duties between Incident Commanders was proven effective.
- Dedicated communications increased EMS efficiencies.

### **Re-engagement**

The decision to re-engage after an incident within an incident must not be taken lightly. Each situation is certainly unique. In this case the firefighters had a positive experience and a good feeling about the condition of their peers and how they performed. They took a break, re-focused, received another briefing and were able to focus on the needs of the incident.

- Re-engagement in some situations is not an option. It should be recognized however, that the state of mind of the affected firefighter is also a hazard to be mitigated.

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