

Bald Angel Prescribed Fire

Engine Rollover Incident- 9/27/2010

Facilitated Learning Analysis



USDA Forest Service

Wallowa Whitman National Forest

Grande Ronde Fire Zone

La Grande, Oregon

Table of Contents:

Executive Summary.....	3
Chronology of Events.....	4
Lessons Learned and Recommendations by Participants.....	6
Lessons Learned and Recommendations by FLA Team.....	8
Team Members.....	8
Appendix (Photo Series).....	9

Executive Summary

The Bald Angel Planning area is a combination of Natural Fuels burn blocks and the Bald Angel and Smith timber sales. The Burn area is located approximately 15-20 air miles southeast of the city of Union, Or. The area consists of 10 burn blocks totaling 22,095 acres with the majority of the blocks being natural fuels. The prescribed fire burn plan is complete with signatures from the preparer, the technical specialist, and the district ranger.

The Bald Angel Prescribed Fire, Unit 606 was originally ignited on September 17th, 2010. On Sept 27th, 2010, resources were assigned back to unit 606 to check and secure a nine acre fire incursion into an adjoining burn block (hereinafter referred to as a slop over) on the east perimeter and then continue ignition on approximately 150 acres on the same unit.

The assigned resources set out that morning to the slop over to find a fairly active flank that required attention from two engines. The two engines began securing the perimeter of the slop over with saw line, hand line, and a hose lay. The first engine that was serving as a pumping platform ran out of water and was replaced by the second engine. The first engine then proceeded to the Balm Creek Reservoir to scout access to a fill-site. The Balm Creek Reservoir had not been used or scouted since earlier in the fire season. The first fire engine arrived at the reservoir and found difficult access to the water's edge due to late season drawdown. The engine slowly drove the bank looking for accessibility to the water's edge when the engine became stuck in a soft spot. The engine operator worked on trying to regain traction by attempting to engage the engine into four wheel drive, and digging trenches behind the front tires. When in reverse, the engine suddenly regained traction, jolted back and to the left resulting in the rear wheels sliding towards the reservoir. The engine rolled over into the reservoir in approximately four feet of water coming to rest on its passenger side and roof. The driver escaped through the driver's side window after the cab filled with water.

The driver suffered a few bumps and bruises and was transported to the Grande Ronde hospital in La Grande, OR by agency personnel. The driver is currently back to work and is expected to make a full recovery.

Chronology of Events

September 27, 2010

0730- PFT/PSE resources meet at the La Grande Ranger Station for morning briefing.

0830- Seasonal workforce is briefed by supervisors on the plan for the day. One mission is to prepare for burning approximately 150 acres of Bald Eagle 606, dependant on the days smoke management forecast. The second mission is one single resource boss and one 20 person hand crew proceed to Bald Eagle 606 and secure a nine acre slop over from the 9/17/2010 burn day of approximately 100 acres in the block.

0900- Approval is received to continue burning on Bald Eagle 606. A change is made in resources responding to the slop over; two type 6 engines and a different single resource boss replace the hand crew and SRB. The new SRB will serve as an ICT5 with a trainee. Resources leave the district for the burn site.

1030-1230- Resources arrive at the staging area where assignments were made to staff the slop over and burn unit. One engine is used as the pump station and the remaining engine resources on the slop over begin cutting a brush line and laying hose. Other resources begin recon and familiarization with the burn unit.

1230- General briefing given by RXB2(t) covering the Job Hazard Analysis, burn organization and objectives, weather, communications, general safety and the smoke management forecast for resources with the burning group.

1320- Test fire is ignited on the burn unit.

1325- Favorable results of the test fire result in the beginning of burn operations. With ignition and containment action occurring on the slop over, complexity of operations increased. Besides the ICT5 assigned to the slop over, the burn unit had two ignition specialists and a holding boss reporting to the burn boss.

1345- The engine serving as water source for the slop over runs out of water and is replaced by another engine. The operator inquires of others the location of the water source and is directed to search for a drafting site at Balm Creek Reservoir.

1430- An engine from the prescribed burn is sent to the reservoir to refill and becomes stuck on the west side of the reservoir near water's edge.

1445- Last contact with engine in route to the reservoir.

1500- Burn boss trainee requested an updated spot weather forecast.

1523- Fire ground conditions, relative humidity and observed fire behavior, led to the determination the burn was out of prescription. All burning operations were ceased.

1530-1545- The engine from the slop over sent to refill at the reservoir cannot be contacted by various overhead and other resources. The burn boss trainee is notified and available resources continue attempting radio contact and driving various road systems in the burn area.

1600- Burn boss trainee and others formulate search area plans for missing engine.

1610- One search group notices an engine stuck on the west side of the reservoir and begins to assist with freeing the vehicle.

1620- While assisting with the engine extraction, an object is observed on the northeast side of the reservoir. Using binoculars, the search group identifies another engine resting upside down in the water. Only the tires and undercarriage are visible. At this time, a noticeable beeping from the rolled engine's back-up alarm was also noted.

1625- Resources from the stuck engine arrive at the rolled engine and find the operator close by. Operator appeared to be in shock and had some abrasion near one eye. Burn boss notified.

1630- Burn boss trainee advises dispatch of a roll over incident, locates an EMT from the hand crew and requests another overhead establish command of the incident, assess the situation, order an ambulance and determine hazmat needs.

1658- Patient in route to Medical Springs.

1659- Ambulance in route to Medical Springs.

1703- Hazmat containment plan initiated.

1721- Ambulance arrives at Medical Springs.

1728- Patient is assessed by ambulance personnel and transported by agency vehicle to hospital.

1948- Patient is fine and released from hospital.

Lessons Learned and Recommendations by FLA Participants

This FLA was completed after the Grande Ronde Fire Zone fire management staff had conducted a thorough accident analysis and an After Action Review with involved resources. The FLA team found that the lessons learned were consistent with the team's conclusions and in some cases already implemented.

1. Review communication protocols

Track resources to and from burn units to ensure accountability. Resources at unit 606 had noticed that the engine had not returned from filling. They tried to make radio contact with the engine with no success. It was unknown if the engine was having trouble drafting at the reservoir or if it got lost in route. There was no check in protocol in place to track the resources leaving and returning to the burn area.

2. Scout and Identify potential engine fill sites

Balm Creek Reservoir had been briefed to resources as a potential fill site with the caveat that depending on the water level, access could be difficult and that drafting may not be possible. Volume pumps have been used in the past to eliminate engines from having to park close to the water's edge which would decrease potential for getting stuck. Some areas of the reservoir contain better rock and a harder surface than other areas. Scouting and setting up a volume pump, communicating its locations, and identifying on the project map would eliminate engines getting stuck and shorten turnaround times.

3. Fully staffed engines, first time in

When engines access unknown areas, send driver along with at least one crew member to assist with scouting, backing, hazard identification, drafting or setting up volume pump. Once area is scouted, it is appropriate to send just a driver to fill.

4. Engine operator training

Continue to train engine operators on identifying adequate fill sites, recognizing draft versus volume pump needs, identifying potential fill site hazards, familiarity with equipment, and recognizing when they are in trouble and to call for assistance.

5. Update Job Hazard Analysis for accuracy and relevancy

JHA for prescribed burning was used during the briefing for the resources. The JHA did not cover engine operations on prescribed fires nor did it cover hazards associated with engine fills sites. JHA's should be updated yearly for accuracy and relevancy to ensure that the briefings contain good and relevant safety information.

6. Clear Leaders Intent

Ensure that leader's intent is communicated to and understood by, all assigned resources. Priorities and organizational changes that are made must be communicated to allow for resources to have accurate situational awareness and to make good decisions.

Lessons Learned and recommendations by facilitator

The FLA team was able to interview most of the participants involved in the rollover incident. The discussions were open and honest with lots of discussion between participants that resulted in more understanding of what happened and why. The FLA team recognized that many of the recommendations had already been identified and in some cases already implemented into the organization. Along with the recommendations from the FLA participants, many of the lessons learned by the FLA team were focused on the things that went right.

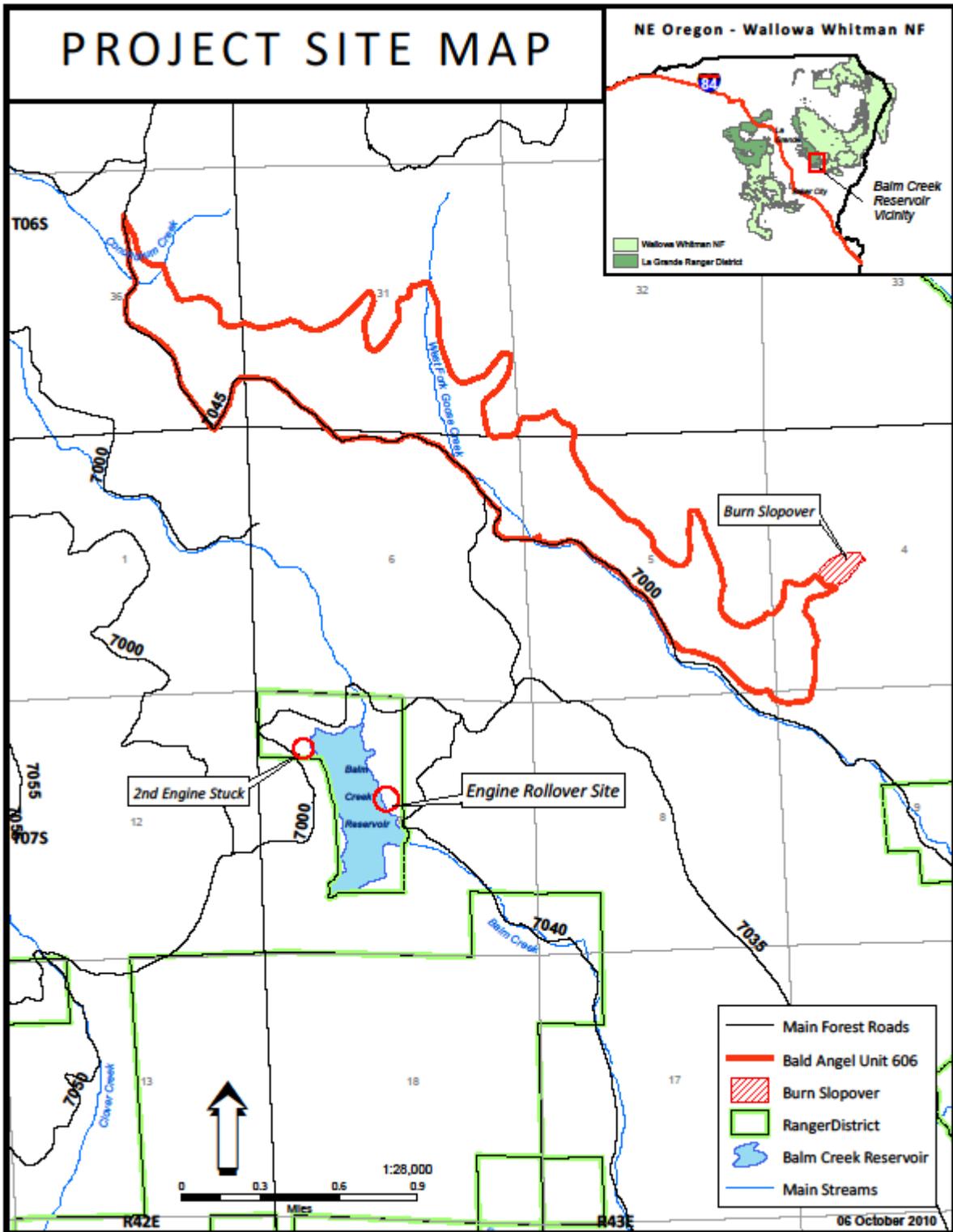
The resources on scene did an excellent job of reacting to the Incident within an Incident and acting quickly and appropriately. The victim of the rollover was understandably shaken up and personnel took action to ensure timely care of the individual.

Command and control for the prescribed burn, the slop over, and the Incident within an Incident continued and an IC was assigned to the rollover to manage patient care, security of the scene, and potential hazmat issues.

Team Members

Mike Matarrese, Willamette National Forest (FLA Team Lead)

Alex Robertson, Central Oregon Fire Management Service/ Prineville BLM



Appendix A (Photo Series)



The area where engine was originally stuck.



The two track that the engine followed and the other engine that was stuck across the reservoir