



Schnetzer Fire

Injured Sawyer

Facilitated Learning Analysis

March 6, 2014

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Springfield, SD March 2014

Summary

The Schnetzer Fire sawyer injury Facilitated Learning Analysis (FLA) was requested by the Division Director, South Dakota Department of Agriculture, Division of Wildland Fire to learn what occurred on the Schnetzer Fire on March 6, 2014. Due to late notification, Wildland Fire personnel arrived at the scene 40 days after the incident on April 15, 2014.

The 11-acre fire was located 2 miles north and 2 miles east of Springfield, SD and was burning across a field towards a dry creek drainage. Outside of the drainage was mainly pasture ground consisting of grass with cedar above the drainage and hardwoods with grass and timber litter in the bottom. The fire was primarily wind driven and grass fueled.

The sawyer was injured while cutting a burning dead cottonwood tree they feared would drop into fuels in the bottom of the drainage leading to the road on the north, then to some adjacent structures.

The review team made efforts to contact the injured firefighter to make arrangements for interview but was unable to talk directly with him. The facts within this document are from accounts stated by other personnel on scene.

Weather

Weather in the Springfield area was average for the time of year. A 24 hour low temperature of 17° F to a mid-afternoon high temperature of 44° F recorded at the Yankton, SD 25 miles to the east of the fire area.

Winds were from the south to the southeast for the day with wind speeds from 14 to 25 mph. Maximum wind gust of 31 mph was recorded.

Relative humidity for the 24-hour period ranged from 61% to 100%.

At the time of the accident, weather in the fire area was temperature 34° F, Relative Humidity 75% with winds around 17 mph with wind gusts to 25 mph. Reports of wind gusts of up to 31 mph were reported in the area.

Fuels

The Schnetzer Fire area holds grass, brush, and timber fuel models. The grass fuel models consist of prairie grass, alfalfa fields, and wheat stubble. Brush Fuel Models were present in the creek bottoms, draws, and river breaks. Timber fuel models consisted of hardwoods in the creek bottoms as well as cedar trees on the slopes coming out of the creek bottoms and river breaks.

Topography

The Schnetzer Fire area lies to the north of the Missouri River and terrain varies widely. Farm fields and pastures consist of rolling terrain. Wooded areas are located in rolling terrain and in river breaks that have slopes as great as 30% in some areas. The river breaks, draws, and creek bottoms were significant enough to have an effect on the wind when in proper alignment.

Narrative

At 11:19 CDT the morning of March 6, 2014, the Bon Homme County, SD Dispatch center paged out the local volunteer fire department for a grass fire 2 miles north and 2 miles east of their town. The fire originated in a landowners' trash pit that was ignited to burn trash. The fire department arrived on scene at 11:31 hrs.

The fire was spreading in a north to northeasterly direction across the grass fuel model towards the creek drainage. A small amount of cedar was present above the drainage on the west and south sides with hardwoods and litter on the sides and in the bottom. The main driver of the fire was the winds that had some topographical influences. Upon stopping the forward progress of the fire, the firefighters began mop-up. On the edge of the drainage was a dead cottonwood tree with fire creeping up the side. The tree was approximately 20 feet tall dividing into two trunks approximately 9 feet above the base. One trunk continued upward and the other leaned to the west-southwest. The department was concerned the burning embers would get into the unburned fuel in the drainage. Winds were out of the south-southeast and the members feared any fire establishing itself would follow the drainage to the road on the north and possible spread across the road into the shelterbelts around two residences.

The fire department borrowed a chain saw from the landowner and proceeded to cut the tree down. The person injured (FF1) was cutting the trunk of the tree approximately 5 feet above the ground with a diameter of 12-14 inches, while standing on the northwest side of the tree. A second firefighter (FF2) was standing on the south side of the tree pushing on the trunk with a McLeod trying to make it fall to the north.

Around 12:30, when the tree began to fall, FF1 retreated to the southwest. FF2 lowered his head and continued to push with the McLeod. The tree then traveled in a westerly direction

toward the branch, which leaned to the west-southwest, striking FF1 on the right side of head and shoulder? FF1 did not lose consciousness and was evaluated on scene by an EMT. Another firefighter then transported FF1 to the local hospital 10 miles away for evaluation. FF1 received seven stitches above his right eye and had pain in the right shoulder.

Wildland PPE is supplied to the members of the department but due to the cold temperature and winds, they opted to wear structural PPE. The structural helmet showed significant damage on the right side behind the mount for the face shield. There is a 6" crack starting at the edge brim and continuing upward towards the top of the helmet. The back piece of the headgear was driven into the rear brim of the helmet and slightly deformed the area where the brim meets the main helmet. The helmet was manufactured 8/12 to NFPA 1971 standards and was purchased last year.

Contributing Factors

No proper size-up was done, especially when considering the escape route.

The tree was dropped in a direction against the weight/lean.

The cut was made too high on the bole/trunk.

No face cut and hinge was used to control the direction of fall of the tree.

The swamper and sawyer have not taken a S-212 class or formal chainsaw training.

Lessons Learned

Properly size up EVERY tree.

Consider if the tree really needs to come down.

Always wear personal protective equipment.

Firefighters need training and certification for the job/duty they are performing.

Recommendations

Always evaluate if the escape route is viable if things do not go as planned.

Use proper face cuts to control the direction of fall. There was no face cut made to supply a hinge to control the direction of fall. The firefighter was cutting straight through and relying on the other firefighter being able to push the tree in the desired direction.

Analyze all tasks for risk versus gain. In this case, did the tree really need to come down? Was there a legitimate threat to the containment of the fire? The fire did not carry well in the drainage due to the fuels. This fire was mainly wind driven.

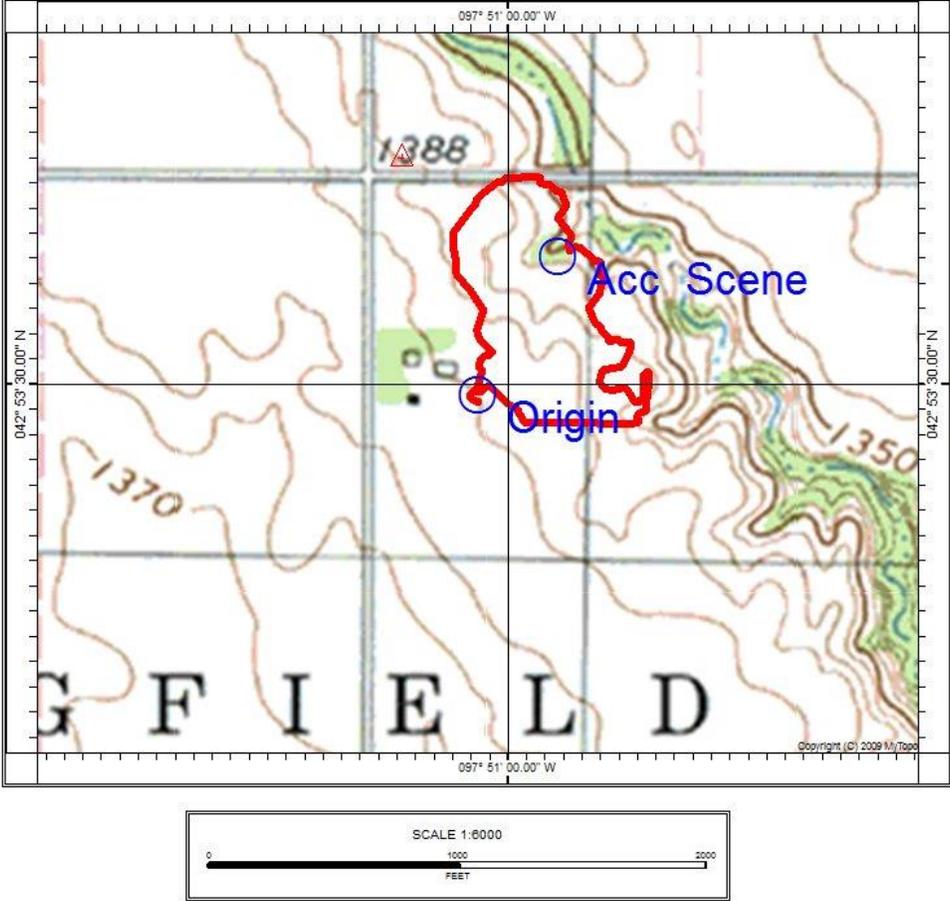
Provide training for all personnel involved in fireground operations to ensure they can perform assigned tasks safely.

Always use personal protective equipment. The weight of the piece that fell was estimated at weighing around 250 lbs. Considering the amount of damage to the helmet, the use of structural PPE instead of wildland PPE contributed greatly to the survival of the firefighter.

Every attempt should be made to activate a FLA team as soon as possible following an incident.

Always have a medical plan and protocols in place in case of injury.

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Map of fire area showing perimeter, accident scene, and point of origin.

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Point of origin looking northeast.

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Looking north. Accident site is where the two drainages come together at center of picture.

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Accident site. Closest branch struck FF1.

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Accident site.

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Top of cut section. Branch to the left struck FF1.

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Cut end of section which struck FF1.

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Rotted wood in cut made by FF1.

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Butt of section which struck FF1 showing the cut.

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Rear of headgear pushed into brim of helmet.

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Damage to the right side of helmet.

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Review Team

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