



# **THUNDERBOLT ESCAPED PRESCRIBED FIRE MAY 20, 2021**

## **FACILITATED LEARNING ANALYSIS**



Report Date: June 2021

**Abstract:** A forest burned machine slash piles in two timber sales from April 16-22, 2021. On May 20, 2021, after the snow had melted, smoke was reported in the vicinity. Although there had been lightning that week, an investigation determined the source was one of the Thunderbolt piles. As a result, the prescribed fire was declared a wildfire on May 27, 2021.

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## INTRODUCTION

“WE have a report of a smoke in the Thunderbolt Ridge area.” This was unexpected news considering the high elevation of the ridge and the fact that it was only May 20<sup>th</sup>!

The smoke was discovered to be from a fire burning in logging slash and standing lodgepole in a recently harvested timber sale unit; the fire started on national forest and spread onto private land. A month prior, between April 16 and 22, 2021, almost 500 acres of slash piles had been burned in the area. The origin of the escaped fire was determined to be one of the slash piles ignited in April. The wildfire, which was declared on May 27, 2021, grew to 36 acres. This Facilitated Learning Analysis (FLA) conveys the story of this incident and the lessons learned by those who were involved.

*“I’m thankful for this process, and I know we’ll be learning valuable lessons from this FLA.” District Ranger*

## SETTING

### Location

Thunderbolt Ridge is on a ranger district that includes land in two states. All pile burning on this part of the forest is guided by a zone burn plan. Fire management on the forest is divided into three zones. This zone covers four ranger districts (now combined into two) managed under two district rangers. The piles were within timber sales located at about 9,000 feet in elevation that had been piled by machine in 2017 and 2018.

*“It was a tough place to get into at that time of year.”  
Burn Participant*

### Vegetation and Fuels

Extensive stands of beetle-killed lodgepole pine exist across the entire district. Continuous fuels are present throughout the entire project area with light logging slash covering the forest floor,<sup>1</sup> surrounded by nonmerchantable lodgepole regeneration. The slash was machine piled through the timber sale contract.



*Burn operations, April 2021*

<sup>1</sup> The logging contract allowed for up to 24” of slash left on the ground.



## **Snow Depth and Pile Consumption**

Snow depth varied across the units with bare ground in the wind-scoured areas and up to three feet or more on and around the piles. There could be four feet of snow on the windward side but almost nothing on the other side.

**"The snow was hip-deep if you broke through the crust. The snowmobiles did fine, but as the day warmed, you couldn't walk around without falling through."**

***Burn Boss***

All of the other piles ignited during the April 2021 operations burned down quickly to white ash within one burn period. However, this particular pile, later determined to be the source of the wildfire, was smaller than average (approximately 20'x30'). It was also harder to ignite, likely because it contained a heavier component of root wads and dirt. For these reasons, it did not fully consume.



***Piles burning, April 2021***



***Origin, May 2021***

## THE STORY

### Background

Because there have been extensive fuel treatments in recent years on the east zone, there are roughly 5,000 acres of piles needing to be burned. To limit fire spread, machine piles are typically burned in late fall/early winter or February/March when the snow has receded enough to allow for good consumption.

On April 9, 2021, the Zone Fuels Technician, who typically manages burning on the district, left for a two-week fire assignment.

The new Zone Fuels AFMO had only been in the job for a few weeks and was still relocating, splitting his time between the two locations.

**"Our leadership relies on our expertise. The pressure was not targets but rather the burning window and the need to complete numerous burning projects." *Zone Fuels Technician***



***Burn operations, April 2021***

A timber employee from another office in the zone, who needed to maintain currency for his RXB3 qualification, was asked to be the Burn Boss (BB1). He agreed but was only available until April 21. Also, it was decided that he would be the BB on the ground, and the Zone Fuels Technician would handle the smoke and spot weather requests while away on another assignment. (This was the only employee familiar with this state's smoke management process.)

During this time of the year, piles are ignited primarily with drip-torches and Aluma-gel. Snowmobiles are necessary for access to the burn units. Very few fire personnel are back from non-pay status in early spring and even fewer are snowmobile certified.

Therefore, burning is often done using "militia" resources. Using non-fire employees is a benefit to the fuels program. They know the area and are very familiar with the piles. BB1 is one of just a few who were snowmobile certified. This, combined with his knowledge of the timber sales and the piles, made him a good choice to fill the BB role.

**"Using non-fire personnel is a benefit to the Fuels program. We can have multiple burning operations going at the same time." *Zone Fuels AFMO***

**"Riding the snowmobiles was pretty technical with the burn equipment strapped to the sled."**

***Burn Boss***

## **The Plan**

### ***Burn Plan***

Multiple versions of the zone pile burn plan exist electronically and in various offices. The copy that BB1 received via email was unsigned, but he was assured it was complete, and that a signed copy existed. (The signed copy was stored at a different office.) BB1 created his own binder for the burning operations, with a copy of the burn plan and the various documents he would need in the field while burning.

For the piles in this area, the plan was to ignite them between April 16 and 26. However, the last day of burning ended up being April 22 because snow conditions were no longer conducive for access to the area. The zone had use of a tracked UTV which was utilized earlier in the year. At this point in the season the snow was not deep enough, and the UTV was not utilized.

### ***Burn Operations***

Between April 16 and 21, pile burning proceeded under BB1 and went according to plan. Because he had to return to his regular job, BB1 transitioned and transferred command of the prescribed fire to BB2 at the close of operations on Wednesday, April 21. (BB2 was from another district within the zone.) A thorough debrief and transition occurred between the two burn bosses. Dispatch and zone fire management overhead were all made aware of this transition.

Burning under BB2 on Thursday, April 22, also went as planned, and as mentioned, that was the last day of pile ignitions in this area. BB2 is the last BB of record for the pile burn with dispatch. There was no documented official transfer of command from BB2 back to the Fuels/Zone fire management organization, rather an assumption that the local district would follow up with monitoring the piles and eventually someone would declare the pile burn out.

### ***Post-burn Operations***

No patrols were assigned, and the piles were never declared out. Several factors led to not going back to check the piles:

- Historically, the snowpack acts as an effective holding feature for machine piles.
- Usually there are more spring snowstorms than there were this year.
- The snow and road conditions made travel to the pile units very difficult. Also, there were not enough people snowmobile qualified.
- The zone was short-staffed with recent vacancies, and some positions had new hires.
- Attention was shifted to burning hand piles on another district within the zone.



- BB2 took another position on a different forest a few weeks after the pile burn ignitions commenced.

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“When you don’t see smoke for a day or two, everyone goes back to their day jobs; the piles were forgotten.” FMO

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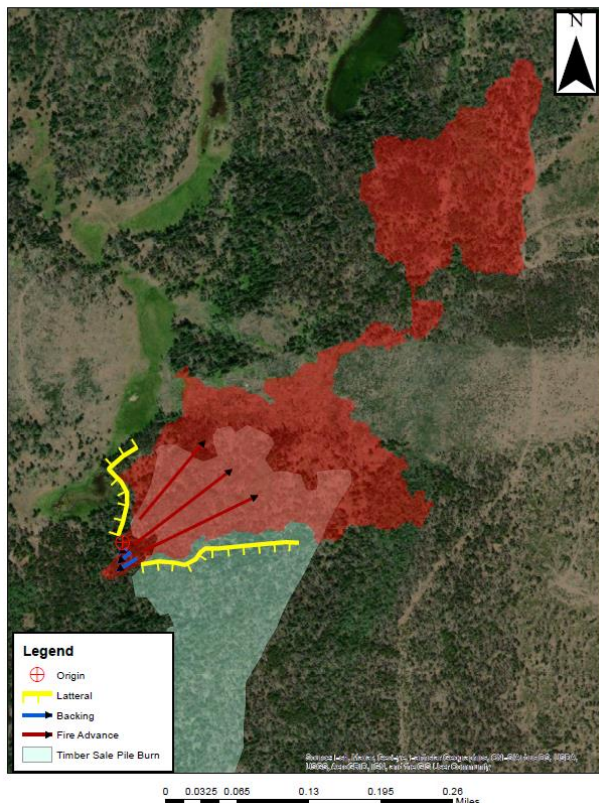
## Wildfire

### *Smoke Reported*

On May 20<sup>th</sup>, a smoke report near Thunderbolt Ridge came into the district office. Several fire personnel at the local district office had the same thought, “Oh crap, our piles took off.”

“Initially it was like, ‘there can’t be smoke up there!’”  
Suppression AFMO

Local Fire management responded and quickly decided to order a fire investigator since the fire had already burned on private land.



**Fire Investigation, Location of Origin**

The fire investigator was not able to respond until May 21. He began his investigation from the north end of the fire. He attempted to conduct a walk around and determine a perimeter for the fire. As the day progressed, the weather changed from rain/snow to partly cloudy. It became hard to distinguish the smoke from the steam rising as the sun came out. After a while, the ICT4-trainee reported there was another part of the fire to the south. Due to the hazardous weather conditions the investigator did not complete his investigation and had to return another day. After the first day on scene, the investigator thought the cause to be lightning. Upon his return to the fire on May 26, the investigator completed his investigation and determined the cause of the fire to be the Thunderbolt prescribed fire.

“Because of the snow and conditions, it wasn’t setting off any warning alarms. However, the weather turned warm quickly.”  
Suppression AFMO

### ***Wildfire Declaration***

On May 27, 2021 at 0947 hours, the wildfire declaration was reported to Dispatch by BB1. Because the burn plan dictates the BB make the wildfire declaration, BB1 was directed to make the declaration, by the District Ranger in consultation with forest Fire Staff Officer.

“Burning in mid-April seemed late to me because of the heavy fuels in machine piles.”  
*Burn Participant*

As previously explained, BB1 had transitioned the burning operation to BB2 on April 21 and had returned to his regular job in timber. The last day of burning under BB2 was April 22. BB2 at the time of the wildfire declaration was no longer an employee of the local forest.







*Looking upslope from the origin pile*



*Surrounding fuels*

## **Lessons Learned**

### *Prescribed Pile Burning*

- Clearly outline your mop-up and patrol plan when burning piles (if snow is one of your holding features, the snow may melt before your piles are out).
- Utilize all available weather data for area, Snotel,<sup>2</sup> or cameras to check your snow conditions.
- Speak up if you have concerns about burning in late spring (or anytime).
- Ensure access for monitoring and patrolling your burn is feasible before you ignite.
- A well-organized e-filing system, including a defined process for adding documentation is needed when dealing with a zoned organization and multiple offices utilizing one plan.
- Adjust standard operating procedures to adapt for the shrinking pile burning window.

### *Communication*

- Transition is a dangerous time on wildfires, and it is the same for prescribed burning. More deliberate communication is needed when key personnel are new, on assignment or transitioning.
- Clearly define the roles and responsibilities between BB and zone fuels staff.
- Make sure your burn plan provides an opportunity to transition from ignition-day operations back to the local unit for long-term patrol and mop-up (Duty Officer, fuels, or other).
- Stay engaged. It's easy to assume a lot, and not stay as engaged, when you have a high level of trust in your organization, especially on low risk/less complex activities.

**"I should have communicated to my boss sooner that it was potentially an escaped pile."**

***AA Trainee***

**"It's hard to say if the outcome would have been different if communication was perfect, but the communication piece is big."**

***District Ranger***

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<sup>2</sup> Snotel stands for SNOpack TELelemetry, which is a remote backcountry weather station that measures snow and transmits the data wirelessly.

## FACILITATED LEARNING ANALYSIS TEAM

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