

COOTER'S BOG
ESCAPED PRESCRIBED BURN
FACILITATIVE LEARNING ANALYSIS



US FOREST SERVICE
SOUTHERN REGION
KISATCHIE NATIONAL FOREST
CALCASIEU RANGER DISTRICT

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INTRODUCTION

On Tuesday, April 26, 2010 on the Calcasieu Ranger District of the Kisatchie National Forest, Louisiana, the 709 acre Cooter's Bog Prescribed Burn (Compartment 132) was implemented. After completion of the firing phase of prescribed burn operations, a pine snag caught fire and threw embers outside of control lines, causing a spot fire in a pine plantation on adjacent private lands. The fire intensity and size of the escape grew rapidly and exceeded the capabilities of onsite resources for that burn unit. The FMO declared the escape a wildfire at 1445, per direction in the prescribed burn plan. The wildfire eventually burned 132 acres of pine plantation before being brought under control by on-site and contingency resources.

REVIEW PROCESS

The Forest felt there were lessons to be learned and shared from this escape. It was agreed a team should be assembled to conduct a Facilitative Learning Analysis (FLA) to review the incident and bring forth lessons learned and to meet policy set forth in the *Interagency Prescribed Fire Planning and Implementation Guide* and FSM 5140 for review of escaped prescribed burns.

The Facilitated Learning Analysis process promotes individual and unit learning, as well as the beneficial practice of respectful interaction, beneficial dialogue, and problem solving. Most importantly, engaging in this process increases our wildland fire community's experience and insight, reduces serious accidents, and results in more efficient firefighting and prescribed burning.

It was decided that those involved in the FLA team should include:

- Key people involved in the prescribed burn on site, including the Burn Boss
- A well respected Burn Boss from another forest
- The local Agency Administrator and Fire Management Officer
- The FLA facilitator (Forest Fire Staff Officer)

The focus of this FLA is not to place blame on any parties involved; but to foster a learning environment for other firefighters, fire managers and land managers to aid in recognizing similarities that may prevent future escapes.

SYNOPSIS OF EVENTS LEADING TO ESCAPE

9:30 Burn Boss, 2 UTVs , dozer and 1 engine arrived on the burn unit. Burn Boss reconnoitered control lines on the ground.

10:50 5 more firefighters arrived and 1 engine. Briefing was held.

11:15 Started Test Fire and notified Dispatch.

11:25 Started firing base lines.

12:00 Onsite weather: Temp 80 degrees, RH 41%, Winds WNW 3-5mph.

12:15 Firing of base lines complete. Some additional cleanup needed on far south end of line.

13:00 Helicopter recon.

13:07 Base lines backed off approx. 100 feet. Aerial ignition commences.

13:41 Helicopter finished firing unit. Aerial recon conducted, all lines holding and burn progressing satisfactorily. Base line patrolled twice.

14:00 Two additional prescribed fire crewmembers arrive.

14:20 Spot over in private plantation detected. UTV water pump on patrol unit lost prime. Dozer requested at spot over. High resistance to control with flame lengths of 12 to 15 feet. IC changed strategy from direct attack to indirect attack by firing roads to contain fire. The south side of fire jumped the next road running east and west. The Engines tried to contain it but the fire progressed into another plantation that was 15 to 20 feet tall and very thick. IC requested helicopter and bucket. Helicopter arrives. IC directed firing of the next road, but this road did not hold. These spots were controlled by the dozer unit and support resources.

14:30. Winds NNW at 8-10 and Gusts to 17 mph, RH 25%, Temperature 83.

14:45 FMO declared the escape a wildfire.

15:27 Additional resources from Fort Polk arrived with 3 plow units and 1 engine.

17:29 Fire contained at 132 acres.

18:40 AAR was conducted covering problem areas, staffing, speed of fire, tactics for suppression and what went well on the burn.

FINDINGS

1. An analysis of seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration.

- a. Fuel conditions were characteristic for the season with severity being low due to live fuels being at peak green-up conditions.
- b. Though there was a rainfall deficit at the time, drought indices (KBDI) for this time of year were acceptable and well within acceptable limits.
- c. It had been 2 days since rain. That rainfall amount was .07 inches.
- d. No control issues occurred on multiple prescribed burns on the district's last burning day - 3 days before this unit was burned. On that day a total of 4 units were burned for 2,700 acres.
- e. The burning snag had been protected by raking yet caught fire sometime later while it was unwatched. Patrols passed this snag multiple times during the day, but were not present when it spotted across the line.
- f. The private land fuel conditions at the point of escape were open and exposed, with small pines (approx 2-3 years of age) present. Flashy grass fuels were the primary carrier of the fire. This exposed and grassy condition was significantly different than the timbered conditions on-site.

2. An analysis of the actions taken leading up to the wildfire declaration for consistency with the Prescribed Fire Plan.

- a. Resources on site consisted of an RXB2, TPOP with Type 3 dozer, 4 personnel with 2 type 6 engines, and 4 personnel with 2 UTVs for a total of ten personnel on the ground during the operation. This staffing met the minimum staffing required by the burn plan. Two additional holding crewmembers arrived later in the day. There was also a FIRB, PLDO and HEMG assigned to the helicopter, which was shared with other district burn projects that day.
- b. The FMO declared the escape a wildfire at 1445 per Elements 17 and 18 of the prescribed burn plan. Element 17 addresses escape fire on Private Land.
- c. The fire intensity and size of the escape grew rapidly and exceeded the capabilities of onsite resources for that burn unit, which resulted in a conversion to a wildland fire. Upward reporting of the escape was timely and complete.
- d. The Rationale for Declaration as a wildfire is as follows:
 - i. Private timber was damaged and more was at risk,
 - ii. The fire exhibited a high resistance to control efforts and
 - iii. Additional resources outside of the normal district contingency resources were requested.

3. An analysis of the Prescribed Fire Plan for consistency with policy.

- a. Actual parameter observation information for the burn unit was not documented. Specifically, information concerning PI and BI should be added to the prescription documentation page of the district burn plans.
- b. The Forest has an established parameter for days since rain (14 days). However, this Forest standard for days since rain does not specify a minimum amount of rain in that parameter.

4. An analysis of the prescribed fire prescription and associated environmental parameters.

- a. The general weather forecast from the National Weather Service Fire Weather Center at Lake Charles, Louisiana predicted a minimum Relative Humidity of 25% for Vernon Parish on the day of the burn. A subsequent spot weather forecast requested for the burn site predicted a 30% minimum relative humidity. After firing of the unit was finished, an RH of 25% was recorded from the closest RAWS station.
- b. A sudden, unpredicted decrease in RH and increase in winds occurred at 1400 hours.
- c. No spotting or slop-over activity occurred that day on the burn unit before the escape.

5. A review of the approving line officer's qualifications, experience, and involvement.

- a. The District Ranger is very experienced in prescribed fire operations and is qualified and delegated responsibility to sign burn plans. This district burns over 50,000 acres annually.
- b. The DR discussed the day's prescribed burning priorities that morning with the district FMO and was supportive and involved in the process.
- c. The AA Go/No Go decision was signed by the District Ranger on April 13, 2010.

6. A review of the qualifications and experience of key personnel involved.

- a. All personnel were qualified for the positions occupied.

7. A summary of causal agents contributing to the wildfire declaration.

- a. Off-Unit resources were unfamiliar with the burn and adjacent private land, particularly the significance of the locked gate which prevented access by engines to the east flank of the unit.
- b. Inadequate local briefing was given to the off-unit burn boss.
- c. A gate into the private land was assumed to be open for engine access. Locals should have addressed the issue and advised the burn boss.
- d. A sudden and unpredicted change in weather (wind, RH) created control problems.

- e. A malfunction in equipment (UTV pump prime) may have been a contributing factor.
- f. Delay in detecting the spot fire due to a shortage of holders along the fire line. This shortage was due to unexpected access issues, and associated shortage of mechanized resources.
- g. Ignition of a snag even though it had been protected by clearing of fuels around its base. This ignition was not detected and mitigated by the holding crew in a timely manner.

RECOMMENDATIONS

1. Consider the use of more local (district) resources should be used on burns that are high risk (ie, private land, plantations) if the burn is staffed predominately by off-unit resources.
2. Non-local Burn Bosses should get a thorough briefing and be allowed time to become familiar with the planned burn area before the test fire. During burn plan preparation, districts should write the plans with enough information for an off-unit Burn Boss to clearly understand its requirements.
3. The Kisatchie National Forest FMOs and burn bosses will develop a standard method of specifying minimum resource needs in a manner that is understood by all and consistent across all districts. Standard organizational charts would aid greatly in this effort. . Specifically, listing the number of personnel needed for each piece of equipment would aid in determining minimum staffing needs.
4. The Forest FMOs, burn bosses and GIS specialists will meet to establish standard forest-wide Burn Plan map formats and legends. This group will consider the use of aerial photography as a layer in these maps.
5. When planning burns, address the most reactive fuel conditions inside **and** outside of the burn unit, especially pine plantations or high concentrations of fine fuels. Specify staffing and resource needs and types for these conditions.
6. On days when multiple burns are scheduled, prioritize resources by the risk associated with each burn block.
7. If the Burn Boss gets a gut feeling that they need more resources, order them, even if not required by the burn plan's minimum staffing requirements. This is especially true when conditions change, such as equipment malfunctions, weather changes or sudden increases in fire behavior.
8. If practical during implementation, consider dividing units into smaller blocks when burning on the high end of prescription parameters.
9. Due to the risks associated with spotting when burning adjacent to private lands or other high risk areas, felling of snags adjacent to private lands should be seriously

considered after assessing risks associated with each snag. Raking all fuel around the base of each snag may not be adequate in some cases.

10. Burn Plan Element 11 was confusing as written. In addressing the implementation of multiple units concurrently it allows sharing of resources with other burn units, but also appears to restrict such sharing. This should be clarified in future district burn plans.
11. The forest should consider establishment of a minimum rainfall amount to further clarify its current parameter of days since rain.

COMMENDATIONS

The sharing of resources between districts for maximum efficiency is commendable. Especially notable here is the burn boss' willingness to provide leadership on another unit when needed.

The parties involved in the analysis were very forthcoming and honest with a true desire to learn – as an agency – ways to improve future prescribed burning operations.

The unit FMO and burn boss were quick to assess the situation, declare the burn escaped, and acquire the necessary resources to quickly contain the escape and thereby limit damage.