

# Painter Piles After Action Review

## HELL CANYON RD SD-BKF

### Executive Summary

On March 12, 2010, a U.S. Forest Service prescribed fire near the town of Custer, South Dakota, spread onto Forest and Private Lands. The slopover was contained within the first burning period and was not declared a wildfire. The pile had been ignited on March 10, 2010, and was one of the thousands in the Painter project. The Windsong Incident involved one land owner.

The Windsong Prescribed Fire was immediately adjacent to the Forest boundary and was managed by the Hell Canyon Ranger District (RD) of the Black Hills National Forest, in the Rocky Mountain Region of the U.S. Forest Service. Prescribed fire was planned to treat up to 3200 acres of hazardous fuels (piled slash) on National Forest land. The Windsong Incident consisted of 8.1 acres outside the intended treatment area, including 0.5 acres of private land. The fire traveled down slope and directly threatened one single family dwelling, and two out buildings. Damage to private property was minimal including one scorched pine, one small cedar tree, and scorched fence post.

Prior to implementation, a Prescribed Fire Plan was prepared and followed. Personnel involved in the preparation and implementation of the burn were qualified and had the appropriate training and experience. The prescribed fire spread during holding operations

### Background

The Hell Canyon RD is one of four Ranger Districts in the Black Hills National Forest surrounding Custer South Dakota, in Custer County, western South Dakota. The Ranger District manages 315,000 acres of the 1.2 million acres Black Hills NF.

Prescribed fire has been an important tool in the management of the Forest for maintaining the ecosystem, improving wildlife habitat, grazing livestock, and reducing hazardous fuels. The Painter Prescribed Fire project consisted of low complexity piled slash removal projects conducted under the Forest-wide programmatic Prescribed Fire Plan. The Forest has an extensive history of vegetation management and these prescribed fires were implemented to reduce a backlog of piles created as part of their accelerated hazardous fuels reduction program.

The overriding reason for the prescribed fire was to respond to the increasing wildland fire risk that could threaten life, property, and resource value.

Completion of the Painter Piles project was the last planned prescribed fire of the season, with the final 12 ignitions on 03/10/2010. District personnel successfully completed in excess of 10,000 piles during the winter months of FY 2010.

## Purpose of the Review

On March 15, 2010, Fuels AFMO Hell Canyon RD, was directed by Forest Fire Management Officer to conduct an After Action Review (ARR) as defined in the Interagency Prescribed Fire Planning and Implementation Guide (July 2008). The Windsong Incident was *not* declared as escape due to the following reasons.

- The fire was contained in approximately two hours
- Suppression costs were low
- Smoke was not an issue
- Good public relations with the landowner exist
- Damage to private land was minimal
- Damage to the structures did not occur

Even though the Windsong Incident was not declared as escape, our leaders intent to document events and learn from them include:

- Help prevent future escapes.
- Establish accountability.
- Determine if the Prescribed Fire Plan was adequate.
- Determine if the prescription, actions, and procedures set forth in the Prescribed Fire Plan were followed.
- Determine if overall policy, guidance, and procedures relating to prescribed fire operations are adequate.
- Determine the level of awareness and understanding of procedures and guidance of the personnel involved.
- Determine the extent of prescribed fire training and experience of personnel involved.

In accordance with the Interagency Prescribed Fire Planning and Procedures Guide July, 2008, Hell Canyon RD analyzed the following seven elements, in order to meet the purpose of the review.

1. Seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration.
2. The actions taken leading up to the wildfire declaration, for consistency with the Prescribed Fire Plan.
3. The Prescribed Fire Plan, for consistency with policy.
4. The prescribed fire prescription and associated environmental parameters.
5. The approving line officer's qualifications, experience, and involvement.
6. The qualifications and experience of key personnel involved
7. Causal agents contributing to the wildfire declaration.

## Process

The team reviewed project files, NEPA documents, relevant policy documents, and personnel fire-qualifications records.

The review process included review and/or analysis of:

- The NEPA documentation for the project – The Painter EA was not reviewed at this time, but is available.
- Weather and on-site conditions leading up to the escape.
- Forest policy regarding prescribed fire program elements.
- The qualifications of personnel involved.
- The Prescribed Fire Plan, for consistency with policy.
- The actions leading up to the Incident, for consistency with the Prescribed Fire Plan, including contributing causal agents.

## Results of the Review

### Introduction

The results of the review include a brief fire chronology, and the findings for each of the seven assigned elements of the review.

### Fire Chronology

03/10/2010: 0600 hrs	Crews conducted snow removal- received 3” of snow
03/10/2010:1000 hrs	Burn Notification sent to Great Plains Dispatch
03/10/2010:1300 hrs	12 Piles POL ignited, decided not to ignite hand piles in other project
03/11/2010: AM	Weather was cloudy / Snow in AM 1”/ snow melting in the PM
03/11/2010:0900	Forest dozer transported on-site
03/12/2010:1200	Discussion for patrol for the weekend- planned- thought no need today
03/12/2010:1430	Custer Fire Department Dispatch to a reported smoke Windsong Valley area
03/12/2010:1430	FS Engine E632 in service with Thompson and Cullum
03/12/2010:1440	Attempted DO contact- DO backup contacted via cell- advised
03/12/2010:1445	E632 on Scene
03/12/2010:1455	CFD Engine 4 on Scene
03/12/2010:1458	Ordered fire investigator
03/12/2010:1510-15	CFD 3 & 6 on scene
03/12/2010:1530	Fire investigator on scene
03/12/2010:1730	Some resources released 1845 all resources on scene
03/13/2010:0800	E632 and 634 continued with mopup- mopup completed @ 1200 hrs.
03/14/2010:1600	Forest dozer spread all piles in Windsong area

## Landowner Property



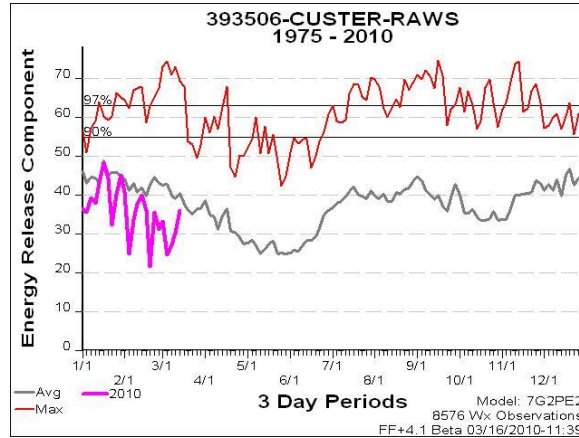
## Element #1: Seasonal Severity, Weather, and On-Site Conditions/Physical Factors Leading Up to the Wildfire Declaration

### Seasonal Severity

**Drought and other seasonal-severity factors were not outside average conditions.**

Analysis shows that ERC's and with recent moisture and or drought were not factors

Exhibit 1: Energy Release Components



### Weather

Three inches of snow had fallen the morning of ignition, and one inch the day after ignition and morning of pile spread. Forecasts were accurate as warmer weather was predicted, however there were no wind events forecasted. Relative humidity's fell below ten percent in early afternoon drying out 1 hour fuels, which were the main carrier of the fire. Winds were from the East, which pushed the fire down slope towards the private land and structures.

Table 1: Weather Data

Obs Date	Temp.	RH	24hr. Precipitation	Wind Speed
03/07/10 13:00	43	83	.17	4
03/08/10 13:00	51	30	.04	2
<b>03/10/10 13:00*</b>	<b>32</b>	<b>68</b>	<b>0</b>	<b>1</b>
03/11/10 13:00	39	50	.12	5
<b>03/12/10 13:00**</b>	<b>50</b>	<b>10</b>	<b>.08</b>	<b>1</b>

\*Ignition of Piles

\*\* Pile Spread

Weather captured 1300 hours daily from the Custer RAWS.

Exhibit 2: Minimum Relative Humidity's

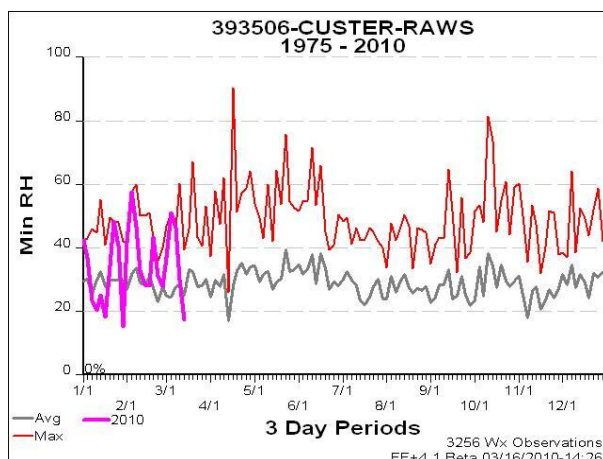
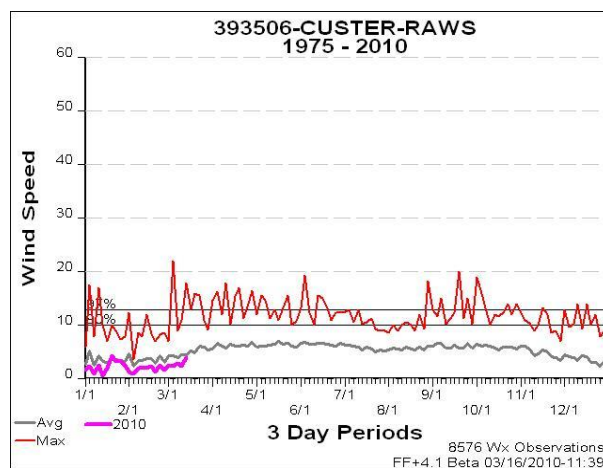


Exhibit 3: Wind Speed (Max)



All weather data collected through KCFast and analyzed with Fire Family Plus

### On-Site Conditions/Physical Factors

- One hour fuels dried out and contributed to fire spread
- Aspect was a factor to fire spread, due to the south and west slopes where snow cover deteriorated rapidly.

## Element #2: The Actions Taken Leading Up to the Wildfire Declaration, to Determine Consistency with the Prescribed Fire Burn Plan

### **Implementation of the burn was consistent with the written plan.**

An approved Prescribed Fire Plan was utilized to ignite the piles. The burn plan utilized was specific to pile burning under the presence of at least 2" of snow. On the day of ignition 3 fresh inches of snow had fallen. After crews plowed snow at district offices they left to evaluate the project site for ignition.

The plan specifies:

#### A. Environmental Prescription:

Historic experience on the BKF suggests that two plus inches of uniform snow cover has been sufficient to inhibit surface spread from biomass concentrations thus, no environmental parameters are identified. 2" of snow is the environmental prescription (BHNF Forest Wide Pile Plan).

## Element #3: The Prescribed Fire Burn Plan and Consistency with Policy

### **The Prescribed Fire Burn Plan was consistent with policy.**

An approved Prescribed Burn Plan was utilized to ignite the piles and guide decisions related to declaration of escape. The plan contained all of the required elements.

The plan was approved by Forest Supervisor (12/18/2008) and has been used yearly since the approval date. The Black Hills has aggressively utilized the plan to accomplish approximately 3,000 acres of pile burning annually, since the approval date. The Black Hills in FY 2010 has ignited more than 30,000 piles, to date.

## Element #4: Prescribed Fire Prescription and Consistency with On-Site Measured Prescription Parameters

### **The Prescribed Fire Prescription was followed.**

The prescription in the plan centered around the prescriptive element requiring at least two inches of snow being present. The project area consisted entirely of product other than log (POL)-piles which were ignited with uniform snow cover of more than two inches throughout the entire project area

At the time ignition began until it was completed there was uniform snow depth of 3 inches in the project area. At the point in time where the forecast suggested that a warming and drying trend was expected patrols and other holding actions were planned consistent with burn plan direction.

## **Pre-Burn Considerations**

Obtain local weather forecast through the national weather service. Spot weather forecast will not be needed if 2 or more inches of snow exist. If fire exceeds 10 acres or spreads on to other ownerships order a spot weather forecast through Great Plains Dispatch (BHNF Forest Wide Pile Plan).

Spot weather forecast was not required as per the Burn Plan, local NOAA weather was utilized.

## **Wildfire Conversion**

A prescribed fire must be declared a wildfire by those identified in the plan when that person(s) determines that the contingency actions have failed or are likely to fail and cannot be mitigated within the next burning period by on-site holding forces and any listed contingency resources. In addition, an escaped prescribed fire must be declared a wildfire when the fire has spread outside the project boundary, or is likely to do so and cannot be contained within the next burning period (BHNF Forest Wide Pile Plan).

A determination of an escape will be based on the inability to contain the fire with the resources on site. This decision will be based on the spot weather forecasts, fire behavior observations, and fire growth estimates. If the fire cannot be contained within the first burning period, a WFSA will be completed to determine the appropriate control strategy. The burn boss should evaluate the contingency plan before ignition to determine if it is still valid based upon the predicted weather and fuel conditions (BHNF Forest Wide Pile Plan).

The Windsong incident was not declared a wildfire.



## Element #5: Approving Line Officer's Qualifications, Experience, and Involvement

The approving Line Officer, at the time of the plan was qualified.

The Prescribed Fire Plan was approved by Forest Supervisor Black Hills NF.

The District Ranger on the Hell Canyon RD was actively involved as an agency administrator throughout the incident and has been delegated authority to approved moderate complexity prescribed fire plans in the BH-Supp-5140.

## Element #6: Qualifications and Experience of Other Key Personnel

Incident Qualification and Certification System (IQCS) records for personnel assigned to key positions at the time of the incident, as well as the IQCS and local-unit documentation of the qualifications and delegations of authority for key management personnel were reviewed. Assigned personnel all possessed the necessary experience, training, and qualifications to participate in their assigned roles. At this time no formal audit has been completed, if requested IQCS records will be provided.

- Fuels AFMO: Currently qualified as a DIVS, HEMG, RXB2, FIRB, TFLD, ICT4, STEN and ICT3(t). Successfully completed S-490, S-491, and various other fire management courses. Ten years as a Fuels AFMO in two regions of the Forest Service.
- Engine Captain: Currently qualified as TFLD, DOZB, FIRB, RXB2(T), ICT4, Successfully completed S-490 and various other fire management courses.
- Engine Captain: Currently qualified as TFLD, RXB2, FIRB, ENGB, ICT4 Successfully completed S-490 and various other fire management courses.

## Element #7: Key Causal Factors

In the review of the Windsong Prescribed Fire, it is found that there was a Prescribed Fire Plan, it met policy requirements, and it was followed during implementation. Furthermore, personnel involved in developing the Prescribed Fire Plan and in implementing the project were qualified for their roles, as shown in the Incident Qualification and Certification System. All actions taken were within the scope of their duties.

Upon recognition of the changing conditions and the fire's spread, the assigned personnel of the project and crews on-site took appropriate suppression actions, while ensuring firefighter safety.

Findings of the primary factors that contributed to fire spread in the Windsong Prescribed Fire include:

- Forecasted warming temperatures resulting in snow loss
- Dozer operator was unable to spread the piles, as planned on 03/12/2010, the day of the event
- Relative humidity's dropped to 10% thus drying one hour fuels (grass) allowing for fire spread.

## Recommendations

The Black Hills National Forest (BKF) Programmatic Pile Prescribed Fire Plan is scheduled for review in FY 2010. BKF needs to consider standards and/or guidelines that could increase, or at least raise, awareness for planners and implementers during late winter and early spring operations. Examples could include ensuring the Go/No Go checklist is signed for each project rather than for an entire season or month. In addition, the long term forecast should be documented and discussed.

Ensure all district personal involved with pile implementation review the Burn Plan annually and document in a tailgate safety session in the fall before pile burning begins.

## Commendations and Acknowledgements

The HCRD makes the following commendations and acknowledgements:

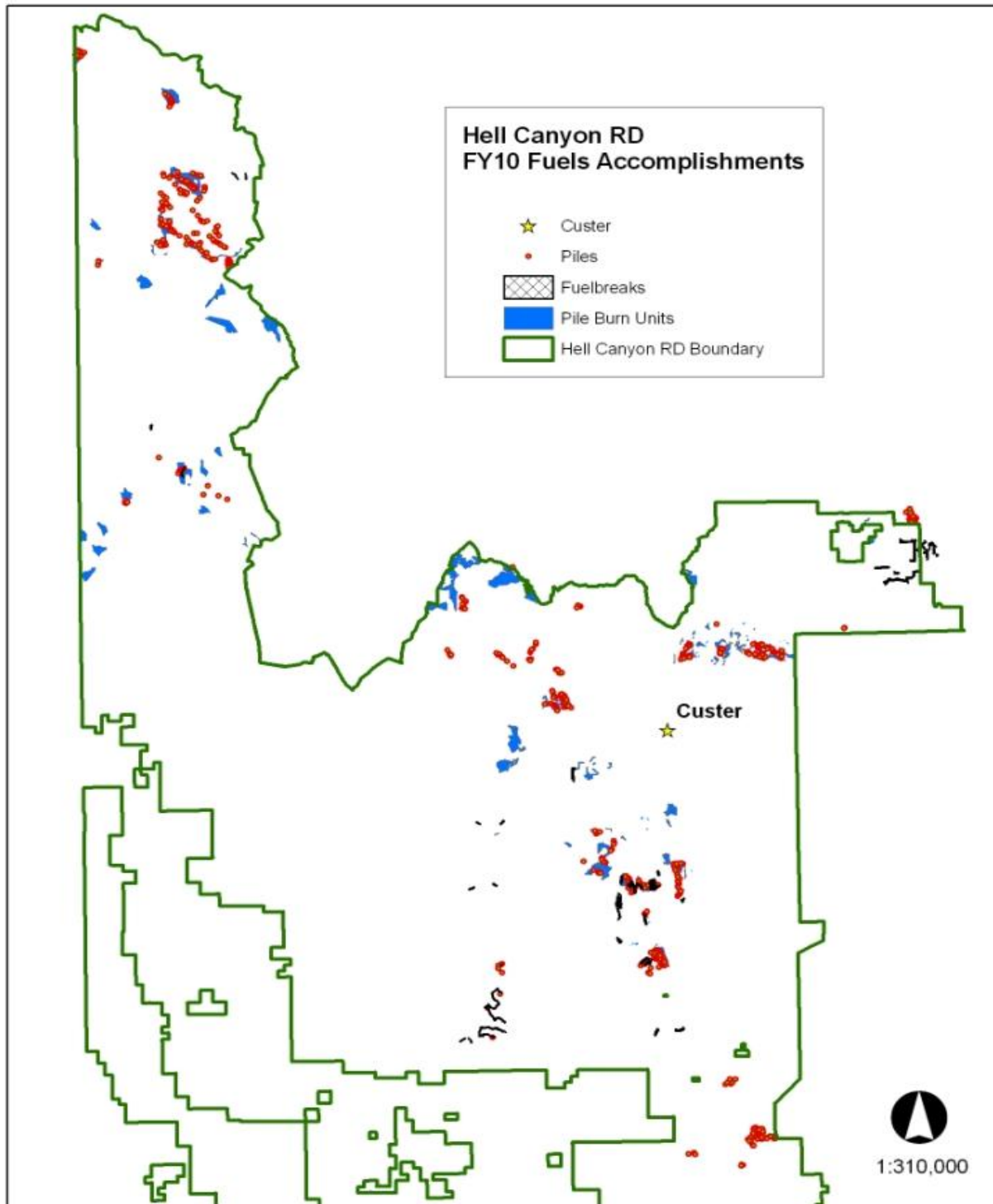
- Safe, efficient, and effective fire response of the Forest Service and Custer Fire Department was recognized by the landowner and Forest Service Management.
- Public relations with the landowner that occurred during and after the fire was excellent. Landowner stated “I hate to admit this but it didn’t hurt a thing.”
- District Line Officer, Supervisor Office, and Regional Office Support.

The following individuals attended the AAR.

Hell Canyon District Ranger  
 District Planning Staff  
 District FMO  
 Forest FMO  
 Fuels AFMO  
 Engine Captain  
 Engine Captain  
 Fire Operations Specialist  
 Fire Operations Specialist  
 Engine Captain

# Appendices

Map 1: Hell Canyon Accomplishments 2010- District Wide







Map 3: Windsong Pile with Affected Area

