

BURNED-AREA REPORT
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST****A. Type of Report**

- ☒ 1. Funding request for estimated WFSU-SULT funds
- ☐ 2. Accomplishment Report
- ☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)
- ☐ 2. Interim Report
 - ☐ Updating the initial funding request based on more accurate site data or design analysis
 - ☐ Status of accomplishments to date
- ☐ 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION**A. Fire Name:** Red Point**B. Fire Number:** P20476**C. State:** Wyoming & South Dakota**D. County:** Weston [Wyoming] & Custer [South Dakota]**E. Region:** 02**F. Forest:** Black Hills**G. District:** Hell Canyon**H. Date Fire Started:** 7-21-2003**I. Date Fire Contained:** 7-30-2003 at 18:00**J. Suppression Cost:** \$4,500,000 as of Aug. 6, 2003**K. Fire Suppression Damages Repaired with Suppression Funds**

- 1. Hand fireline waterbarred (miles): miles unknown, but all was rehabilitated
- 2. Dozer fireline rehabilitated and waterbarred (miles): 58 - in progress
- 3. Fireline seeded (miles): 58 - in progress
- 4. Damaged rangeland fence (miles): 0.76
- 5. Road cross drainage (miles): 18.0

L. Watershed Numbers: 101201070308, 101201070407, 101201070503**M. Total Acres Burned:** 17,950

NFS Acres(11,019) BLM Acres (2,422) State-WY(323) Private-WY(3,017) Private-SD (1,149)

N. Vegetation Types: Ponderosa pine (35%), grass (65%)

- O. Dominant Soils: Various soil complexes primarily from the Lakoa-Crownest complex, Rockoa-Rock outcrop complex, Rakoa-Lakoa-Rockoutcrop complex, Butche-Rock outcrop complex, and Rock outcrop-Vanoker complex.
- P. Geologic Types: Mostly sandstone with smaller occurrences of siltstone, shale, gypsum, and limestone.
- Q. Miles of Stream Channels by Order or Class:
Order 1: 108 miles, Order 2: 59 miles, Order 3: 29 miles, Order 4: 13 miles, Order 5: 2 miles
- R. Transportation System
Trails: 0 miles : Roads: 33 miles system : 17 non-system : 20 miles of other jurisdiction roads

PART III - WATERSHED CONDITION

- A. A. Burn Severity (acres): 11,374 (low & unburned) : 3,886 (moderate) : 2,690 (high)
- B. Water-Repellent Soil (acres): 3,704 (none) : 8,641 (slight) : 4,260 (moderate) : 1,345 (strong)
- C. Soil Erosion Hazard Rating (acres):
4,132 acres / 23 % (low) 6,386 acres / 36 % (moderate) 7,432 acres / 41 % (high)
- D. Erosion Potential: 1 to 40 tons/acre post-fire : 1 to 3 tons/acre pre-fire
- E. Sediment Potential: 500 to 9,000 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 3 to 10 years
- B. Design Chance of Success, (percent): 90
- C. Equivalent Design Recurrence Interval, (years): 2 years
- D. Design Storm Duration, (hours): 1 hour
- E. Design Storm Magnitude, (inches): 1.1
- F. Design Flow, (cubic feet / second/ square mile): 190 to 427
- G. Estimated Reduction in Infiltration, (percent): 1 to 177 percent
- H. Adjusted Design Flow, (cfs per square mile): 224 to 523

PART V - SUMMARY OF ANALYSIS

- A. Describe Watershed Emergency:
Threats to Life and Property

Field reviews within the burned area and downstream of the burned area confirm that threats to life are unlikely. The only risk or threat to life is where roads cross channels that now have a substantially greater potential for flash floods during short duration – high intensity thunderstorms.

With the exception of stock ponds, threats to property are unlikely. There were no structures built in or near the floodplains within the fire area or downstream that were identified as susceptible to flooding. The railroad was identified as a potential value at risk. However, field review shows that the culvert and bridges will be adequate to pass expected flood peaks and that there is

abundant upslope storage over broad areas if the railroad does back up water. The channels leading to the railroad are not well defined and the flood flows will spread out across the alluvial fans. There are several stock dams in the area and downstream. Increased flows and sediment may fill in the dams or could cause a couple of the dams to breach. Some roads in the area will intercept, concentrate, and reroute water which will increase stormflow peaks and slope erosion potential. The increased runoff and erosion could also damage the road template including failures at channel crossings. There is some potential for road and/or stock pond failures to cause cascading failures that amplify as the disturbance moves downstream.

Threats to Long-Term Soil Productivity

Field reviews indicate potential threats to long-term soil productivity. Observations of the Red Point and the adjacent Elk Mountain 2 fire suggest that there will likely be an increase in noxious weed infestation from Canada Thistle. There is also risk of infestation from leafy spurge. Areas invaded by noxious weeds can lead to a decline in effective ground cover. This could increase erosion and reduce soil productivity.

Threats to Water Quality

Water quality in Beaver, Line and Pass Creeks and the Cheyenne River has the potential of being impacted (although Line and Pass Creek are intermittent streams). The Cheyenne River is 303(d) listed for conductivity, dissolved solids and suspended solids for the section of stream from Beaver Creek to Angostura Reservoir. Fire related erosion and runoff may contribute to the pollutants of concern, however, the impacts and increases of sediment to the streams are expected to be short in duration.

B. Emergency Treatment Objectives:

- 1) To reduce erosion and sedimentation from burned areas.
- 2) To protect crews installing drainage and erosion control measures along roads and trails and increase public safety by removing hazard trees.
- 3) To reduce concentration of water and subsequent erosion on Forest system roads and reduce erosion and sedimentation on the downslope side of roads.
- 4) To prevent expansion of noxious weeds in the burned area.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land 70 % Channel 90 % Roads 90 % Other 90 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	80	90
Channel	70	80	90
Roads	80	90	100
Other	90	90	80

E. Cost of No-Action (Including Loss): \$943,000

F. Cost of Selected Alternative (Including Loss): \$557,000

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range
<input checked="" type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

In addition, members from the South Dakota NRCS and Department of Forestry participated in assessing values at risk. We utilized a writer editor and person to facilitate operations and logistics.

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H. Treatment Narrative:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

- *Noxious Weeds*

Method

Weed expansions are likely due to disturbance by the fire. Treatments are designed to reduce expansion into previously unpopulated areas.

Existing noxious weeds within the fire perimeter and along the northern fire perimeter will be treated with herbicides during the first year after containment of the fire to prevent expansion of weed populations (approximately 315 acres). The 58 miles of suppression dozer line will be monitored for new populations due to high risk of noxious weed establishment. Note: The Black Hills National Forest has a signed noxious weed EIS with provisions for the use of herbicides.

Areas with new or expanded weed infestations discovered and treated in Year 1 will be monitored and retreated as needed in Years 2 and 3. Interim 2500-8 forms will be prepared for each additional year that monitoring and additional treatments are deemed necessary.

Objective

Treat weeds to reduce long-term treatment cost and avoid the resulting impacts to other resource values.

- *Aerial Seeding*

Method

Seeding should reduce the amount of time needed to reestablish protective ground cover, which will reduce erosion and flooding potential. High and moderate burned slopes on National Forest near the Elk Mountain 2 fire, which has abundant populations of noxious weeds, and near known cheat grass infestations will be seeded to reduce the ability for noxious weeds to become established (approximately 2,465 acres). This treatment proved effective on the Elk Mountain 2 fire, which is located immediately to the north of the Red Point fire, for noxious weeds when compared to areas that were not seeded. High intensity burn areas are proposed for seeding away from the existing noxious weed and cheat grass populations where elevated hydrologic response and soil erosion is a concern. The same seeding mix approved in 2001 for the Elk Mountain 2 fire is proposed for the Red Point fire except that Indian Ricegrass is replaced with Green Needlegrass, because it is about ½ the price and is more common on Elk Mountain.

Objective

Reduce erosion and elevated runoff potential, and meet Forest Plan standards for weed control using a least cost to risk strategy.

COMMON NAME	SCIENTIFIC NAME	PLS LBS/ACRE
Annual Ryegrass	Lolium multiflorum	15
Western Wheatgrass	Pascopyrum smithii	5
Green Needlegrass	Stipa viridula	4
Sideoats Grama	Bouteloua curtipendula	2

Annual ryegrass was added to establish short-term erosion control and suppress the spread of invasive and noxious weeds. District personnel with local knowledge and experience indicate that annual ryegrass is a non-persistent cover crop. In the area to be treated, annual ryegrass comes on quickly, tolerates exposed soil conditions and does not persist beyond 5 years. Annual ryegrass has been used in this area in post-fire seeding operations with good success. The other species in the seed mix are native species that have been used successfully in the past for short and long-term erosion control.

- *Temporary Fencing*

Method

A two-wire barbed wire fence with steel posts will be installed to prevent trespass on National Forest from private livestock grazing. Locations where topography can be used to limit livestock access will be used to the fullest extent possible. This design for temporary fence was selected because past experience on the district indicates that this type of fence withstands wildlife impact. In the past, elk herds on Elk Mountain have destroyed normal two strand electrical fences as fast as it can be repaired.

Objective

Protect BAER stabilization treatments and natural recovery in areas where we cannot effectively control livestock use from private lands using administrative controls or procedures.

Channel Treatments:

- *None*

Roads Treatments:

- *Install Grade Dips*

Method

Overflow grade dips are installed just downgrade of road/stream crossing structures or at the lowest elevation of a through fill to insure the over topping stream flow is safely (i.e. armored outflow if necessary) directed back into its natural channel. The grade dips will be designed to drain water off of the road, but still allow motorized vehicle crossing. The dips are typically skewed 30 degrees and the outlets will be armored with riprap in most areas, particularly those in close proximity to the streams or on a vulnerable fill slope. An estimated 4 overflow dips are needed. Standard grade dips are additions to the existing grade dips and are designed to handle increased runoff by dispersing the flows quickly. An estimated 130 standard grade

dips are required. Grade dips with armor are similar to grade dips with the addition of rock on the bottom and outlet to limit erosion. An estimated 50 grade dips are required.

Objective

Minimize the ability of roads to exacerbate stormflow and erosional response to the burned slopes and reduce potential damage to the road system.

- *Stream Crossing Improvement*

Method

Replace one undersized culvert and add one additional culvert on NFSR 123 including installation of debris barriers.

Objective

Avoid a catastrophic stream crossing failure that could result from post-fire runoff.

- *Culvert and Ditch Cleaning*

Method

Clean all ditches, culvert outlets and drainage structures on the ½ mile portion of FDR 123 along the north perimeter of the burn.

Objective

Assure that the road cross drainage structures function properly given the potential for increases in post-fire slope runoff.

- *Safety Signing Installation*

Method

The junction of FDR 123, FDR 818, junction 120, and County Road 769, which are major entry points to National Forest System lands, will be signed to provide warning and direction to users in the burned area. Example wording for the sign: "CAUTION – Areas within or downstream of Burned Areas are subject to Extreme Flooding and other Hazards including falling rocks and trees."

Objective

Reduce the likelihood that forest users will be harmed by post-fire floods and falling rocks and trees.

- *Hazard Tree and Rock Assessment and Removal*

Method

Remove obvious hazard trees and rocks immediately along all open roads within the burned areas, where fire suppression has not already done so.

Objective

Reduce the potential for falling trees or rocks to harm forest users and employees or damage property.

- *Cultural Resource Assessment*

Method

Map and/or ground review for cultural resource clearance with SHPO for the road and temporary fence treatments prescribed for BAER implementation (approximately 812 acres). The cost for the cultural resource surveys is built into the costs for the road treatments and temporary fence.

Objective

Assure that the proposed BAER treatments are compliant with the National Historic Preservation Act and the Archeological Resources Protection Act.

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

Noxious Weed Monitoring

There are about 20 sites with known noxious weed infestations within the fire perimeter. Seed for Canada Thistle is suspected to occur throughout the fire perimeter. Rate of spread could be as high as 30 to 40 percent in areas with ground disturbance. The purpose of this monitoring is to determine if the herbicide treatments are effective and if noxious weed populations are expanding into new locations affected by the fire. Monitoring of treatments and weed expansion will occur during Year 1. Year 2 and 3 monitoring will evaluate the presence and persistence of invasive species and need for retreatment within Year 1 treatment areas. A detailed monitoring report and request for funding will be submitted each subsequent year.

Monitor Seeding Effectiveness

The results from the aerial seeding towards establishing effective ground cover will be evaluated in Years 1, 2, and 3. Effective ground cover will be assessed with regards to whether or not the potential for erosion and runoff is reduced and whether or not the seeding lessened or prevented new infestations of noxious weeds. Monumented vegetation transects will be installed and re-read in Years 2 and 3. Year 2 and 3 costs will be less than Year 1 that includes transect establishment. A detailed monitoring report and request for funding will be submitted each subsequent year.

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

Line Items	Units	Unit Cost	# of Units	WFSU SULT \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	Total \$
A. Land Treatments										
weed treatments	acres	126	315	\$39,690			\$0		\$0	\$39,690
aerial seeding	acres	100	2465	\$246,500			\$0		\$0	\$246,500
temporary fencing	miles	2100	14.2	\$29,820			\$0		\$0	\$29,820
				\$0			\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				\$316,010			\$0		\$0	\$316,010
B. Channel Treatments										
none				\$0			\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0			\$0		\$0	\$0
C. Road and Trails										
overflow drain dips	each	1400	4	\$5,600			\$0		\$0	\$5,600
standard grade dips	each	325	130	\$42,250			\$0		\$0	\$42,250
armored grade dips	each	700	50	\$35,000			\$0		\$0	\$35,000
culvert installation	each	3175	1	\$3,175			\$0		\$0	\$3,175
culvert replacement	each	3175	1	\$3,175			\$0		\$0	\$3,175
culvert/ditch cleaning	miles	2000	0.25	\$500			\$0		\$0	\$500
safety signs	each	430	2	\$860			\$0		\$0	\$860
hazard rock removal	each	540	2	\$1,080			\$0		\$0	\$1,080
hazard tree felling	each	37	60	\$2,220			\$0		\$0	\$2,220
hazard tree assess	assess	2000	1	\$2,000			\$0		\$0	\$2,000
				\$0			\$0		\$0	\$0
<i>Subtotal Road & Trails</i>				\$95,860			\$0		\$0	\$95,860
D. Structures										
				\$0			\$0		\$0	\$0
<i>Subtotal Structures</i>				\$0			\$0		\$0	\$0
E. BAER Evaluation										
BAER team	each	48600	1	\$48,600			\$0		\$0	\$48,600
F. Monitoring										
weed monitoring	acres	0.75	10773	\$8,080			\$0		\$0	\$8,080
seeding effectiveness	acres	3	2465	\$7,395			\$0		\$0	\$7,395
cultural resources	acres	18	100	\$1,800			\$0		\$0	\$1,800
<i>Subtotal Monitoring</i>				\$17,275						\$17,275
G. Totals				\$477,745						\$477,745

PART VII - APPROVALS

1) /s/ Brad Exton (for)
 John C. Twiss
 Forest Supervisor (signature)

8/7/03
 Date

2) /s/ Greg Griffith (for)
 Rick Cables
 Regional Forester (signature)

8/11/03
 Date