USDA-FOREST SERVICE FS-2500-8 (7/00)

Date of Report:

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[**X**] 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)

[**X**] 2. Interim Report
[**X**] 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: Sheep Creek

B. Fire Number:

C. State: MT

D. County: Beaverhead

E. Region: 01

F. Forest: Beaverhead-Deerlodge

G. District: Wisdom

H. Date Fire Started: 8-15-02

I. Date Fire Contained: 8-25-02

J. Suppression Cost: $2.5 million

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):
2. Fireline seeded (miles):
3. Other (identify):

L. Watershed Number: 100200040407

M. Total Acres Burned:
NFS Acres(2016) Other Federal ( ) State ( ) Private ( )

N. Vegetation Types: Douglas Fir, Lodgepole Pine, Sub-Alpine Fir, Engelmann Spruce

O. Dominant Soils: Typic Dystrocryepts, loamy-skeletal, mixed; and Typic Cryorthents, loamy-skeletal, mixed

P. Geologic Types: glacial till (Pleistocene); and Granodiorite (Tertiary)

Q. Miles of Stream Channels by Order or Class: 7 miles perennial, 3 miles intermittant

R. Transportation System

Trails: miles Roads: 8 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1778 (low) 65 (moderate) 63 (high)
2002 BAER Team estimate - the *slow vegetative recovery / hydrologic recovery as evidenced by channel incision 2.5 growing seasons later indicates the determination of high severity burned acres was underestimated.*

B. Water-Repellent Soil (acres): 2016 (pre-existing condition), with only 128 acres made worse by fire

C. Soil Erosion Hazard Rating (acres):
916 (low) 853 (moderate) 247 (high)

D. Erosion Potential: 2.89 tons/acre

E. Sediment Potential: 1849 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 2-3 years for range, 5-20 for forested lands, and 1-2 years for wetlands

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 2.3

F. Design Flow, (cubic feet / second/ square mile): 20

G. Estimated Reduction in Infiltration, (percent): 10

H. Adjusted Design Flow, (cfs per square mile): 26

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Resources at risk are watershed values and Highway 43 at the mouth of the Canyon Creek watershed.

This request is for the maintenance of road treatments accomplished under the Sheep Creek Fire 2500-8 signed on 9/8/2002. Monitoring has shown that there are deficiencies in the road treatments that need to be addressed. A rainfall event totaling 1 to 1.5 inches occurred between 4:30 and 7:30 pm on July 31, 2005 (weather service estimate from Doppler radar records) fell on the Canyon Creek watershed that burned in 2002. The flood resulted in channel incision and the deposit of large amounts of sediment from the fire area onto Forest Road 1085 filling culverts and exceeding road drainage structure capacities. State Highway 43 was closed for several hours while road crews removed accumulated sediment from the road surface. A 24" x 70' culvert under approximately 25' of fill material that crosses Canyon Creek filled with sediment jeopardizing the road crossing and placed the watershed at risk for catastrophic failure of the crossing. Estimated runoff from the storm event calculated using high water marks was 22 cfs, the culvert could not pass more than 8 to 10 cfs and sediment accumulation at the inlet likely further decreased the volume or completely plugged the pipe inlet. The roadway overtopped and the fill was partially eroded. Had the road fill collapsed, ponded water and saturated fill material would have created a significant debris torrent that would have impacted State Highway 43 located approximately 1.7 miles downstream. The road fill presents a significant public safety risk to traffic along this highway. Forest Road 1085 is needed for future activities within the vicinity of the fire.

B. Emergency Treatment Objectives:

The objectives of this request are to:

1. Reduce the impacts of Forest Road 1085 through the Sheep Creek fire by repairing or replacing road treatments that are not functioning as intended.

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

Land __ % Channel __ % Roads **80** % Other __ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads			
Culvert Replacement	80	80	90
Road Dips	90	90	90
Culvert Maintenance	80	80	90
Other			

E. Cost of No-Action (Including Loss): **See Cost-Risk Assessment document (9/8/2002)**

F. Cost of Selected Alternative (Including Loss): **See Cost-Risk Assessment document (9/8/2002)**

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology [ ] Soils [ ] Geology [ ] Range [ ]
[ ] Forestry [ ] Wildlife [ ] Fire Mgmt. [X] Engineering [ ]
[ ] Contracting [ ] Ecology [ ] Botany [ ] Archaeology [ ]

[ ] Fisheries [ ] Research [ ] Landscape Arch [ ] GIS

Team Leader: Bryce A. Bohn

Email: bbohn@fs.fed.us Phone: 406-683-3865 FAX:

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.)

Roads and Trail Treatments:

Road Drainage – Reconstruct and deepen drive-through dips on approximately 5.5 miles of road to facilitate drainage from the fire across the Forest Road 1085 through the Sheep Creek fire.

Culvert Maintenance – Maintain inlets of approximately 10 culverts draining the Sheep Creek fire area. Sediment has accumulated at the inlets jeopardizing the capacity of the culverts to efficiently drain water.

Culvert Replacement – Replace the 24" x 72' CMP culvert with a 48" x 72' arch pipe. The existing culvert is not large enough to move the post fire elevated peak flows generated by the Sheep Creek fire and is in need of replacement. This elevated fire caused runoff is expected to last for up to 15 years until vegetation is re-established and provides effective ground cover. Due to the fill-slope steepness and depth of fill, construction of an overflow spillway is estimated to be more costly and less effective than culvert replacement at this site.

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.)

Implementation monitoring: Inspect all treatment actions to determine whether or not they were done according to design specifications. This will be done by an appropriate Forest person, who will document any deficiciencies. Monitoring will be done immediately after implementation is completed. Implementation monitoring will include the installation of road treatments (culvert replacement and maintenance and rolling dips). Sediment control and soil productivity measures include straw bale and mulching efforts will be determined to see if they met design criteria.

Effectiveness Monitoring: Determine how effective treatments were in meeting treatment objectives. Specifics are outlined in the monitoring plan document.

This was completed on July 1, 2005. The monitoring indicated that emergency stabilization road drainage structure maintenance and repair is required to safeguard watershed values and public safety.

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

			NFS Lands				Other Lands			All
		Unit	# of	WFSU	Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	SULT $	$	units	$	Units	$	$
A. Land Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$0	$0		$0		$0	$0
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Road drainage	miles	300	5.5	$1,650	$0		$0		$0	$1,650
Culvert Replacement	each	14,000	1	$14,000	$0		$0		$0	$14,000
Culvert Maint.	each	245	10	$2,450	$0		$0		$0	$2,450
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$18,100	$0		$0		$0	$18,100
D. Structures										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
Bohn-IDT Leader	days	302	2	$604	$0		$0		$0	$604
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Evaluation				$604	$0		$0		$0	$604
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				**$18,704**	**$0**		**$0**		**$0**	**$18,704**

PART VII - APPROVALS

1. /s/ Thomas K. Reilly _____
   Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date