

Date of Report: 11/02/2007

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

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

B. Type of Action

- ☐ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)
- ☒ 2. Interim Report # 1.
- ☒ 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:** Meriwether
- B. Fire Number:** MT-HNF-033
- C. State:** MT
- D. County:** Lewis & Clark
- E. Region:** R1
- F. Forest:** Helena
- G. District:** Helena Ranger District
- H. Fire Incident Job Code:** P1DS1N
- I. Date Fire Started:** 7/21/2007
- J. Date Fire Contained:** 9/23/2007
- K. Suppression Cost:** \$ 7,384,000
- L. Fire Suppression Damages Repaired with Suppression Funds**
- 1. Fireline waterbarred (miles):** Total Dozer Line - 41.1 mi – 99% completed to date
Total Hand Line – 42.5 – 99% treated to date
- 2. Fireline seeded (miles):** 99% completed to date
- 3. Other (identify):**
- M. Watershed Number:** 100301012003 (Missouri River-Upper Holter Lake), 100301011702 (Big Log Gulch), 1003010120 (Willow Creek), 100301012004 (Elkhorn Creek), 100301011703 (Lower Beaver Creek),
- N. Total Acres Burned:** There are 5931 acres unburned within the fire perimeter
- | | | | |
|---------------------|--------------------------|-----------------------|----------------------|
| [22,889] NFS | [0] Other Federal | [17,295] State | [338] Private |
|---------------------|--------------------------|-----------------------|----------------------|

- O. Vegetation Types:** Low elevation grasslands/shrublands, Douglas-fir/Idaho fescue, Douglass-fir/snowberry, Douglas-fir/bluebunch wheatgrass which includes significant amounts of ponderosa pine and Rocky Mountain juniper, Douglas-fir/common juniper
- P. Dominant Soils:** Typic Ustochrepts, loamy-skeletal; Typic Eutroboralfs, loamy skeletal; Typic Cryoboralfs, fine-loamy; Argic Cryoboralfs, fine-loamy
- Q. Geologic Types:** Limestone structural breaklands and dip slopes and meta-sedimentary mountain slopes and ridges
- R. Miles of Stream Channels by Order or Class:** 148 mi – 1st order, 36 mi – 2nd order, 12 mi - 3rd order, 2 mi - 4th order
- S. Transportation System**
- Trails: 32.7 miles Roads: 5.1 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Ownership	Low Severity	Mod Severity	High Severity	Unburned
Forest Service	7,942	6,213	8,734	3,199
State Lands	12,312	4,424	559	2,535
Private	255	83	0	195

B. Water-Repellent Soil (acres): 6900

C. Soil Erosion Hazard Rating (acres): 35,892 (**low**) 9,506 (**moderate**) 3,104 (**high**)
It should be noted that there are 4,131 acres designated as bedrock which are not erosive, but very flashy in terms of flood flows

D. Erosion Potential: There is a 10% chance that erosion potential will exceed 17.3 tons/acre in the first year following the fire (ERMiT Modeling)

E. Sediment Potential: 760 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3 years for shrub component

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

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

D. Design Storm Duration, (hours): 24 hr, 6 hr and 10 and 30 min peak rainfall intensity

E. Design Storm Magnitude, (inches): 2.1 (1.69 10 min. peak rainfall intensity ERMiT)

F. Design Flow, (cubic feet / second/ square mile): 6

G. Estimated Reduction in Infiltration, (percent): 30

H. Adjusted Design Flow, (cfs per square mile): 45 to 65 (this represents the flow volume for this storm magnitude only, debris torrent potential is very high in several drainages)

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats (narrative):

The Meriwether fire burned approximately 40,522 acres as of 9/11/2007 and is largely in the Gates of the Mountains Wilderness on the Helena National Forest and the Beartooth Wildlife Management Area managed by the State Department of Fish Wildlife and Parks. Of particular concern is intense burning in the upper canyons of Meriwether, Willow Creek, Slip Gulch and Big Log Gulch. In these areas most of the standing timber, shrubs, grasses and duff layer have been consumed. The loss of vegetative cover and organic matter in these drainages will most likely lead to an increase in soil erosion and overland water/debris flows. System trails that have been constructed in these steep drainages were not designed or constructed to handle these conditions. This may cause soil erosion on the trail surface and fill-slope. Failure of drainage dips and water bars may cause stream capture onto trail treads, causing soil erosion, including loss of the trail by rilling and potentially deep gulying resulting in large amounts of sediment delivery to adjacent drainages. Increasing the frequency of drainage structures on these trails may help to protect the trails from accelerated erosion as well as reducing the total amount of soil that is displaced. The trails include Mann Gulch, Big Log Gulch, Meriwether Canyon, upper Hunter's Gulch, upper Refrigerator Canyon, Willow Creek, and Grant Gulch trails, and total 26.87 miles. Mann Gulch post-fire trail work has been funded through an R1 Trails CIP and so is not included in this funding request.

To ensure BAER rehab crew safety, a number of post-fire hazard trees will need to be removed during rehabilitation of system trails leading into the burned area. The Safety Handbook and the Fire Suppression Manual state that when hazards to these workers are recognized, they should be immediately dealt with and paid with fire suppression or BAER funds.



Meriwether Fire showing high severity burn in one of many upper watersheds



Upper Meriwether Canyon showing high severity burn

B. Emergency Treatment Objectives (narrative):

As the majority of the fire on Forest is within the Gates of the Mountain Wilderness, and all of the proposed treatments are in the Wilderness, objectives will be in line with guidance for BAER treatments within Wilderness. When Wilderness is involved in burned area emergency stabilization assessments, “no treatment” is always the preferred action. However, in the Meriwether fire large areas of moderate to high severity burn coincide with steep terrain to create a high potential for overland flow during summer rain events. Such events have the potential to deliver large amounts of sediment to stream channels, as well as erode and damage or destroy large sections of wilderness trail. The treatment objectives will mitigate the concentration of overland flow along trails through the installation of adequate trail drainage.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land N/A Channel N/A Roads/Trails 75% Protection/Safety N/A

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	N/A	N/A	N/A
Channel	N/A	N/A	N/A
Roads/Trails	70%	85%	95%
Protection/Safety	N/A	N/A	N/A

E. Cost of No-Action (Including Loss):**F. Cost of Selected Alternative (Including Loss):** \$122,000**G. Skills Represented on Burned-Area Survey Team:**

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

Team Leader: Dave Callery**Email:** dcallery@fs.fed.us**Phone:** (406) 495-3710**FAX:** (406) 449-5436**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: None**Channel Treatments:** None

Roads and Trail Treatments: Place drainage structures (e.g. drainage dips, waterbars) in system trails to enhance drainage in the upper reaches of Meriwether, Slip Gulch, and Big Log drainages. Waterbars would be made of native materials on hand. Construction of waterbars next summer could help to reduce erosion on the trail system resulting from an anticipated increase in surface runoff from precipitation events next summer and into the future. Additionally, hazard trees near trail work sites will be removed with cross-cut saws in accordance with EM-7720-102 standard specification for construction of trails, in order to ensure trail crew safety. Number of drainage structures required were estimated at 20/mile for trail sections in areas of moderate to high burn severity and steep terrain, based on an average of 20/mile counted on similar trails for the Wicked-Hicks (Gallatin) 2500-8. Number of hazard trees to be removed was conservatively estimated at 30/mile, based on an average of 59/mile counted in the Wicked-Hicks 2500-8. Unit costs for drainage structure and wilderness hazard tree removal reflect standard contracting rates.

Protection/Safety Treatments: None**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.)

Monitoring will consist of evaluating trail/structure integrity after any major precipitation events for at least three years post-fire.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim #

			NFS Lands					Other Lands				All
		Unit	# of		Other		# of	Fed	# of	Non Fed		Total
Line Items	Units	Cost	Units	BAER \$	\$		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												
				\$0	\$0			\$0		\$0		\$0
install/maintain drainage structures	each	135	538	\$72,630	\$0			\$0		\$0		\$72,630
Insert new items above this line!				\$0	\$0			\$0		\$0		\$0
Subtotal Road & Trails				\$72,630	\$0			\$0		\$0		\$72,630
D. Protection/Safety												
wilderness hazard trees removal	each	55	806	\$44,330	\$0			\$0		\$0		\$44,330
				\$0	\$0			\$0		\$0		\$0
				\$0	\$0			\$0		\$0		\$0
Insert new items above this line!				\$0	\$0			\$0		\$0		\$0
Subtotal Structures				\$44,330	\$0			\$0		\$0		\$44,330
E. BAER Evaluation												
Assessment				\$0	\$0							
Insert new items above this line!				---	\$0			\$0		\$0		\$0
Subtotal Evaluation				\$0	\$0			\$0		\$0		\$0
F. Monitoring												
Insert new items above this line!				\$0	\$0			\$0		\$0		\$0
Subtotal Monitoring				\$0	\$0			\$0		\$0		\$0
G. Totals				\$116,960	\$0			\$0		\$0		\$116,960
Previously approved				\$12,600								
Total for this request				\$116,960								

PART VII - APPROVALS

1. _____
Forest Supervisor (signature) _____
Date
2. _____
Regional Forester (signature) _____
Date