USDA-FOREST SERVICE

FS-2500-8 (6/06)

Date of Report: 5/1/2012

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[x] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[x] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization 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: Camp 5

B. Fire Number: P2G0GE

C. State: Nebraska

D. County: Thomas

E. Region: 02

F. Forest: Nebraska National Forest

G. District: 01

H. Fire Incident Job Code: NE-NBF-120489

I. Date Fire Started: 6/30/12

J. Date Fire Contained: 7/5/2012

K. Suppression Cost: $

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

* to date the fire has been contained but firelines are still in place and bein assessed for rehab needs.

M. Watershed Number:

HUC 12	Watershed Name	Watershed Acres	Acres Burned	Acres Unburned	Percent Burned (Fire)	Percent Unburned
102100020805	Signal Hill	24,414	962	23,452	4%	96%
102100020504	Ewoldt Landing Strip	25,361	89	25,272	1%	99%

N. Total Acres Burned:
NFS Acres (1,049 ac) Other Federal (0 ac) State (0 ac) Private (0 ac)

O. Vegetation Types: There are two Ecological sites present within the fire perimeter: Choppy Sands 17-22 and Sands 17-22.

Grass Dominated	162 acres
30% - 70% Jack Pine	6 acres
30% - 70% Juniper	70 acres
30% - 70% Mixed Pines	44 acres
30% - 70% Ponderosa Pine	103 acres
70% - 100% Ponderosa Pine	537 acres

P. Dominant Soils: Sand

Q. Geologic Types: The area is characterized by undulating, vegetated sand dunes.

R. Miles of Stream Channels by Order or Class:
There are no perennial or intermittent streams within the burn area. All stream channels are ephemeral. There are no known wetlands located within the burn area.

S. Transportation System

Trails (motorized): 4.2 miles Roads: 8.0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 500 (low) 400 (moderate) 149 (high)

B. Water-Repellent Soil (acres): Water repellency was not found in the burn area.

C. Soil Erosion Hazard Rating (acres): [1]
___ (low) ___ (moderate) 1,049 (high) for wind erosion

D. Erosion Potential: [1] 15-25 tons/acre

E. Sediment Potential: [1] 7-18 cubic yards / square mile

[1] *Calculations performed by Kevin Hood - NRCS District Conservationist - Thedford Nebraska for the Four Corners Fire (2006) on the same soil types at Bessey Ranger District.*

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): <2

B. Design Chance of Success, (percent): 90

C. Equivalent Design Recurrence Interval, (years): 2-10 year events

D. Design Storm Duration, (hours): 0.5 – 1 hour

E. Design Storm Magnitude, (inches): 0.5 - 2 inches

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

G. Estimated Reduction in Infiltration, (percent): none

H. Adjusted Design Flow, (cfs per square mile): N/A

Post-fire runoff conditions are not expected be significantly higher than pre-fire conditions due to the nature of the burn, the vegeation types (Grass/Forb communities) and the soil types present on the landscape. However, that small change results in large changes in the runoff characteristics. Due to the inherent nature of the sandy soils and common occurrence of high intensity storms of varying duration, significant runoff and erosion occurs in the area in unburned conditions. The burned has excerbated this response by removing what little protective vegetation and litter was present to provide some soil stabilization and runoff control. Increased erosion and runoff are expected to last less than two years, until vegetation has recovered to once again dampen the response.

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Human Life and Safety:
No emergency conditions were identified threatening human life due to increased runoff and erosion within and adjacent to the burned Forest Service lands. Field reviews within the burned area confirm that threats to life are unlikely and **LOW RISK**. No federal or private houses or buildings are present within or adjacent to the fire.

However, potential threats to public safety do exist associated with runoff and erosion damage to roads and motorized trails (see explanation below under Property section). A fire area closure has been put into place for roads and trails throughout the fire and immediate area due to road conditions and snags.

Property (Roads and Motorized Trails):
Road and roadway damage occurred both from the fire and from fire suppression efforts. The loss of the vegetation will increase the likelihood of severe soil erosion caused by wind and/or a major damage-producing storm with heavy rain (these storms typically occur in late spring and summer). The unique road sub-base native material (sand) poses a challenge to maintain and repair once an existing aggregate surfacing has been damaged and is non-fuctioning as a surfacing material. The roadway includes the road travelway, cut/fill slopes, culverts, and ditches/lead-off ditches.

Damage to the Maintainance Level 3 (ML 3) roads from these storms has shown to be the loss of aggregate surfacing from water erosion causeing the exposed sub-base material (sand) to fail. At the point of failure, the loss of sand creates a "blowout" (large hole) which becomes a safety issue for vehicular travel. The displaced sub-base (sand) material is transported downhill by the water and deposited in low lying areas on and off the roadway, creating deep mounds of loose sand. These deposits (soft spots) cause vehicluar traffic to become stuck and/or lose of control of the vehicle. Damage to the two-tracks would be the loss of vegetation on both

edges and down the middle of these roads causing the native surface material (sand) to move downhill, leaving deep ruts and/or blowouts. Severe erosion will occur where the roads cross over hills. Level 3 roads have been rated as **VERY HIGH RISK** while Level 2 roads have been rated as a **HIGH RISK**.

The fire also destroyed various Forest Service regulatory, warning, and guide signs along the roads.

Natural Resources:

Water

The BAER team did not identify emergency conditions affecting drinking water quality. The watersheds that were burned are not known to be sources of surface drinking water. There are no springs located with the burned area, and the overall impact to water resources will be **Very Low Risk**.

Soil Productivity and Hydrologic Function

The principal concern with this fire is erosion either by wind or rain. The Camp 5 fire consumed almost all of the litter on the soil surface, leaving the sandy soils exposed to the wind. An immediate need following the fire is to replace the litter that has been lost. This is accomplished by growing forage. Grass crowns are present throughout the fire area with the exception of a few areas located within the cedar blocks which produced little ground vegetation to start. As the sand is displaced from the ridge tops to the slopes and bottoms, it covers the existing root crowns, however, grasses are expected to be able to grow through this sand layer. This process is constantly occurring naturally to a much lesser extent. With sandy soils moisture would be very beneficial to help hold the sand in place and create a "crust" on the surface.

Water is transmitted through the soil profile quickly and easily, causing it to be excessively drained. Due to the inherent soil characteristics, these soils are easily eroded by both wind and water. In the short term following the fire, there will be an increase in erosion seen on the hills slopes and down the roads. Rills have been seen within the fire perimeter to date following a ¾ in. rain on July 4 with ponding of runoff throughout the fire perimeter. There is a **HIGH RISK** of an increase of erosion.

American Burying Beetle (Endangered Species)

American burying beetle sampling has occurred on the Bessey Ranger District. Historically, American burying beeltes have been captured on areas adjacent to the fire area, but not within the burn area itself. A report found that low capture rates of American burying beetles failed to identify critical habitat and attain population estimates of the species. Due to the low abundance of American burying beetle in the area and minimal disturbance of the soil forming firebreaks, impacts have been rate as a **LOW RISK.**

Blowout Penstemon (Endangered)

The fire did not occur or impact any blowout sites where re-introduction of Blowout penstemon had occurred on the Bessey Ranger District. Effects to blowout penstemon has been rated as a **LOW RISK**.

Plant Communities

The BAER team did indentify the post wildfire threat of increased risk for spread and/or establishment of noxious weeds.Plant communities on FS lands were rated as **INTERMEDIATE RISK**. There is potential for nearby invasive species such as Canada Thistle, Musk Thistle, Downy Brome and others to invade the disturbed areas within the fire area and around the log piles that were consumed by the fire.

A weed dectection survey of the fire area and follow up treatment will be done for the first year following containment.

Cultural and Heritage

Four eligible sites and one non-eligible site were noted within the burn area. In addition to these sites, an unrecorded Civilian Conservation Corps site known as Camp 5 is located within the burn area. Cultural resource damage will be significant and was rated as **VERY HIGH**.

B. Emergency Treatment Objectives:

Maintain native grassland species diversity. Providing for recovery of native vegetation by preventing the establishment and spread of noxious weeds in the recently bruned area. Maintain soil cover to decrease the potential movement of sand through wind and rain erosion.

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

Land **N/A** % Channel -- % Roads/Trails **50** % Protection/Safety -- %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Weed treatment	80 -90%	50%	
Channel			
Roads/Trails	100%		
Protection/Safety			

E. Cost of No-Action (Including Loss): $37,500

F. Cost of Selected Alternative (Including Loss): $12,930

BAER Risk Assessment (based on probability and magnitude of consequences)

The BAER Team considered many critical values and they are documented in a separate table in the files.

Value At Risk	**Probability**	**Mag. Consequences**	**Risk**
Human Life and Safety	Unlikely	Moderate	Low
Property: Roads, Level 3	Likely	Major	Very High
Property: Roads, Level 2	Likely	Moderate	High
Natural Resource: Water	Unlikely	Minor	Very Low
Natural Resource: Soil Productivity	Likely	Moderate	High
Natural Resources: American Burying Beetle	Possible	Minor	Low
Natural Resource: Blowout penstemon	Unlikely	Minor	Very Low
Natural Resource: Plant Communities (Noxious weeds)	Possible	Moderate	Intermediate
Cultural and Heritage	Very Likely	Major	Very High

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[ ] Geology	[X] Range	[ ]
[ ] Forestry	[X] Wildlife	[ ] Fire Mgmt.	[X] Engineering	[ ]
[ ] Contracting	[ ] Ecology	[ ] Botany	[X] Archaeology	[ ]
[ ] Fisheries	[ ] Research	[ ] Landscape Arch	[ ] GIS	

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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: Dectection survey of the fire area and follow up treatment will be done for the first year following containment.

Channel Treatments: none

Roads and Trail Treatments:
Maintenance Level 3 roads: Treatment for damaged sections (soft spots or blowouts) in these roads would involve armoring the road surface by placing a clay/aggregate combination locally called "mudrock". This will keep the now exposed sub-base (sand) from eroding downslope during rain events and provide a safe traveling surface. Straw waddles may be placed along burned-out road shoulders to prevent the sideslopes from eroding. The roads will be monitored to assure these measures are working.

Maintenance Level 2 roads: Treatment work for damaged sections (soft spots or blowouts) of these roads will include placing "mudrock" in soft spots, straw waddles may be placed in areas where sideslope protection is needed. The roads will be monitored to assure these measures are working.

Protection/Safety Treatments:
Signs: Signs burned up during the fire event shall be replaced per MUTCD standards for Maintenance Level 3 roads and to meet requirements of the MVUM to meet the standards for all roads and trails in the fire area.

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 needs include visual inspections by driving or walking down the road after each storm or rain event to see if soil erosion is occurring.

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										
Invasive weed detection and treatment				$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										
Rock armor road	ton	28	400	$11,200	$0		$0		$0	$11,200
Straw waddles	each	25	50	$1,250	$0		$0		$0	$1,250
Signs/decals/posts	each	24	20	$480	$0		$0		$0	$480
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$12,930	$0		$0		$0	$12,930
D. Protection/Safety										
				$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										
	days			$1,087	$1,087		$0		$0	$1,087
	days			$1,050	$1,050					$1,050
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Evaluation				$0	$2,137		$0		$0	$2,137
F. Monitoring										
Invasive species	days			$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				$12,930	$2,137		**$0**		**$0**	**$15,067**
Previously approved										

PART VII - APPROVALS

1. _____ 7/11/12
Forest Supervisor (signature) Date

2. for _____ 7/16/12
Regional Forester (signature) Date