USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: September 20, 2007

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: GW Fire

B. Fire Number: OR-DEF-000748

C. State: OR

D. County: Deschutes

E. Region: 6

F. Forest: Deschutes NF

G. District: Sisters Ranger District

H. Fire Incident Job Code: P6DY3E

I. Date Fire Started: August 31, 2007

J. Date Fire Contained: September 13, 2007

K. Suppression Cost: 6,091,179.00

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 4 to date
2. Fireline seeded (miles): None to date
3. Dozer line respread and wood pulled across (miles): 5.5 to date

M. Watershed Numbers:
170703010805 Upper Indian ford
170703010901 Dry Creek – largest portion
170703010902 Cache Creek

N. Total Acres Burned:
NFS Acres (6029) Other Federal (0) State (0) Private (1535)

O. Vegetation Types: Several forest and plant habitats are associated with the elevation and moisture gradients found in the fire area. Elevations range from over 5000 feet in the wilderness near the fire's origin on the east flank of Mt Washington to around 3400 near the eastern extent of the fire near the community of Black Butte Ranch. Precipitation varies from about 80 inches a near in the higher elevations on Mt Washington to about 32 inches near Black Butte Ranch. The high elevation forests in the wilderness include lodgepole pine, mountain hemlock, and subalpine fir habitat types. Mid elevaton forests occurring near the wilderness boundary are primarily dry mixed conifer with some inclusions of wet mixed conifer. Common species in the mixed conifer type include: ponderosa pine, Douglas fir, white fir, and lodgepole pine.

P. Dominant Soils: Soils in the burned area are moderately deep to deep (40 to 60 inches) to glacial till, glacial outwash, or basaltic lava bedrock. These soils were originally classified as Cryorthents or Cryandepts and would likely now fall into the ashy Vitricryand classificaton within the newer Andisol soil order. Soils typically have a loamy fine sand surface texture resulting from basaltic ash deposits from nearby Sand Mountain. They have both a high infiltration rate (ie the rate at which water enters the soil profile) and a high permeability rate (ie the rate of water movement through the soil profile). When burned by a fire the soil infiltration rate for water can be reduced due to a hydrophobic layer created by the buring of organic materials at the soil surface.

Q. Geologic Types: Mt Washington is a stratovolcano which has undergone extensive erosion due to mountain glaciers. Other geologic features in the area include glacial moraines which form ridges at the base of Mt Washington and basalt lava flows which originate from nearby Belknap Crater. These features have been mostly covered by ash deposits from nearby Sand Mountain.

R. Miles of Stream Channels by Order or Class: 11.4 miles (all are class 4 intermittent streams)

Summary:
Cache Creek 5.5 miles
Dry Creek 5.9 miles

Wetlands in Fire 48.5 acres

S. Transportation System

Trails: 8 miles

Summary:
RTE_NO
4050 Dry Creek Trail 2.4 miles
4082 Cross District Trail 5.6 miles

Roads: 65.5 miles

Summary:
FS roads 48.8 miles
Private (non system) roads 16.7 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 3,780 (low) 3,015 (moderate) 768 (high)

B. Water-Repellent Soil (acres): 3783

C. Soil Erosion Hazard Rating (acres):
4019 (low) 3545 (moderate) 0 (high)

D. Erosion Potential: 3.44 tons/acre

E. Sediment Potential: 3,674 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5

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

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 0.5

E. Design Storm Magnitude, (inches): 0.67 to 0.77

F. Design Flow, (cubic feet / second/ square mile): 81 to 94

G. Estimated Reduction in Infiltration, (percent): 5

H. Adjusted Design Flow, (cfs per square mile): 86 to 99

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The following summary describes the conditions that warrant emergency rehabilitation actions. This initial assessment and the resulting prescriptions have been developed utilizing experience gained from previous events in the area, most recently the 2006 Black Crater fire, 2006 Lake George fire, 2003 B&B Complex, 2003 Link fire, and the 2002 Eyerly and Cache Mountain fires.

- Human Life and Safety – potential loss or injury of human life due to post-fire environmental conditions primarily due to danger trees along travel routes and disperse camp sites and flooding downstream both on federal and private land.

- Property (roads, culverts, recreaton sites/trails) – potential loss or damage to property on both federal and private land due to post fire environmental conditions primarily due to hazard trees, increased flow magnitudes, flooding, and erosion. These include State, Federal, County and private roads and culverts.

- Soil Productivity – Sensitive soil areas on steeper slopes have an elevated short-term risk of accelerated soil erosion due to high burn intensity and an increase in hydrophobicity. Soil loss in these areas could negatively affect soil productivity over the longer term.

- Sensitive and Desirable Plant Communities – potential loss or degradation to both native and rare plant communities/populations habitat and species due to post-fire conditions and spread of noxious weeds into and around the burned area and from private lands.

- Cultural Resources – loss or degradation to cultural resource sites due to exposure from post-fire runoff and erosion, resulting in an increase in surface collection by forest visitors.

- Boundary work – Boundaries were originally posted using carsonite posts with signs which burn up into a small pile of fiberglass. It is important that boundaries along the wilderness and private property is clearly defined for any activity being undertaken by either private owners or the FS.

B. Emergency Treatment Objectives:

The primary objective of this Burned-Area Emergency Response Report is to recommend prompt actions deemed resonable and necessary to effectively protect, reduce or minimize significant threats to human life and property and prevent the unacceptable degradation of resources. The application of the BAER treatments would minimize on-site and downstream damages to the identified values at risk. The emergency treatments being recommended by the Deschutes National Forest/BAER Team are specifically designed to achieve the following objectives.

- Protect human health and safety by removing and/or mitigating hazards.
- Protect road infarstructure by mitigating the riskof damage due to increased flows.
- Maintain soil productivity by mitigating risk of accelerated soil erosion.
- Maintain water quality by mitigating road damage due to increased flows.
- Protecting cultural resources by monitoring potential vandalism and fulfilling legal obligations to document conditions and change in areas of cultural resources.
- Protect the non-motorized wilderness value
- Assure that planned management activities do not cross FS/private land boundaries

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

Land **80** % Channel ___ % Roads/Trails **80** % Protection/Safety **95** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	90	90
Channel	--	--	--
Roads/Trails	80	95	95
Protection/Safety	95	95	95

E. Cost of No-Action (Including Loss): $1,384,100

F. Cost of Selected Alternative (Including Loss): $110,720

G. Skills Represented on Burned-Area Survey Team:

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

Maintaining Soil Productivity

L1 – Sensitive soil areas within the fire that burned at a moderate to high intensity/severity have an elevated short-term risk of increased runoff and accelerated soil erosion due to loss of vegetative cover and an increase in hydrophobic soil at the mineral soil interface. Loss of ash and topsoil in these areas could negatively affect soil productivity on these slopes. A woodstraw much would be applied on some of the more sensitive areas to provide protection of the soil surface and mitigate potential reductions in soil productivity due to accelerated soil erosion.

Weed Treatments

L2 - Prevent invasive plant spread and introduction to protect native plant communities and rare plants. The goal is to prevent or reduce invasive plant establishment and invasion into the burned area. This would involve surveying the fire area for new infestations, and removal of any discovered seed sources by manual control to prevent spread and establishment. Private landowners in the area will also be contacted to encourage cooperative weed management. Improvements to roads and drainages as a result of recommended BAER treatments will need to be monitored for new infestations.

The probability of completing treatment in the first year is high. Crews would complete the work next summer. The probability of treatment success is high. The plants are easily seen in bloom by road surveys or in vegetative conditions in walking surveys.

Cultural Surveys/Inventory

L3 - Proposed BAER Treatments fall under the definition of an Undertaking following Section 106 (S106) of the National Historic Preservation Act, as amended (NHPA) Thus treatments where ground disturbing activities are proposed must be subjected to S106 consultation, including field survey, assessment of effects and submittal of reports by a cultural resource/heritage specialist under our Region 6 PA with Oregon SHPO in a timely manner. In FY 2007 complete tribal consultation, SHPO reporting, pedestrian surveys at proposed BAER Treatments at the Cache Creek Toll Station, 500 Road, and vented fords at Rd. 1014/Dry Creek, Rd. 1028/Dry Creek and Rd. 1030/Dry Creek. Inventory, evaluate, and document if installation BAER design measures are adequate to protect known sites from emergency BAER treatments. One archeologist working 10 days would complete inventory, reports and consultation.

Channel Treatments:

None Recommended

Roads and Trail Treatments:

Road Treatments

R-1 Construct Vented Roadway Fords with armored outlets at the following road / culvert stream crossings: Rd 1030600 x Dry Creek, Rd 1028 x Dry Creek, Rd 1014 x Dry Creek, Rd 1028 x Cache Creek. The existing culverts will remain in place. Construction includes site specific road surface vent excavation, pit run surface rock, and rip-rap placement.

R-2 Storm Patrol: The rain-on-snow event elevation band includes the road system within the GW Fire. Storm patrols with backhoe assistance are requested for all Collector road miles, including Local Rd 1028500 and Rd 1030600 which have a ditch relief culvert template. This includes Forest Service jurisdiction road miles across private land, where we have ownership of the road improvements / easement. Patrols can be accomplished by two employees over 2 days during each of the following: Fall 2007, Spring 2008, and Summer 2008, or when advised. During this period, 2 days of culvert cleaning by a backhoe and dump truck are planned.

R-3 Construct Armored Drain Dips with Outlets and Roadway Reconditioning: Rd 1028500 shows evidence of recent road surface erosion. Increased roadway runoff following the GW Fire is likely to form gully's within high severity burned areas adjacent to Cache Creek. If funded, two armored drain dips would be constructed between MP 0.7 and 1.1. The roadway will be reconditioned, including surface grading, ditch and culvert cleaning, between MP 0.0 and MP 1.55.

Trail Treatments

T1 – Improve trail drainage by reconstructing drain dips on approximately 2.25 miles of the Dry Creek Trail to reduce the potential for runoff concentration and accelerated surface erosion from anticipated fire effects. Dips vary from rolling outslope dips to waterbars constructed from peeled and anchored native wood material that was destroyed by the fire. These treatments will occur on trail segments with moderate and high intensity burn where the potential for post-fire increases in surface runoff is high.

T2 – Log out trail: A number of fire killed trees will be falling and blocking trail access. Trail log out will be necessary on 2/25 miles of trail to gain access to the sections of trail that need drainage improvements and will prevent development of parallel unauthorized trails.

T3 – Replacement of destroyed trail signing along approximately 8 miles of Sisters Ranger District snowmobile trail

<u>Protection/Safety Treatments</u>:

Road Treatments

R-4 Danger Tree Mitigation at Project Worksites: Danger Trees are required to be felled for worker safety at each BAER project site.

Trail Danger Trees

T4 – Felling of individual danger trees (Fall 2007) along the following routes to protect human life and safety: (1) At Dry Creek Trailhead and along approximately 2.25 miles of Dry Creek Trail which is within the "black" of the GW Fire; (2) Routes to receive danger tree felling will be evaluated to provide the safest access at the lowest cost.

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.)

Soil Muching

M1 – Effectiveness of woodstraw mulch treatments will be monitored by using silt fences to measure sediment from both treated and untreated areas. A brief report will be produced documenting the effectiveness of this type of treatment over a period of three years. In addition other important effects of mulching may also be monitored including effects on revegetation of the site, along with soil chemical and soil biological changes resulting from treatments.

Weed Sites

M1 - Results of the weed prevention treatments #L1 will be monitored by writing a brief report documenting the results of the summer's surveys. This documents implementation and provides valuable documentation of the weed risk from inadequate prevention measures, describes problem areas, and will provide data for future weed control in the area if needed.

Cultural Sites

M3 – Monitoring of site condition will be performed to determined if loss of vegetation from sites as a result of the fire are resulting in secondary effects from erosion or visitor collection due to increased visibility. An archaeologist will visit the site with the site records to record changes to the physical characteristics of soil movement within the site, look for signs of site disturbance by visitors, and document changes in surface artifact distribution and density. Monitoring should be conducted in the fall, after rain events the first year and in the spring after snow melt.

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										
L1-Soil Productivity	Acres	4204	5	$21,020	$0		$0		$0	$21,020
L2-Weed Treatment	Days	160	20	$3,200	$0		$0		$0	$3,200
L3-Cultural Surveys	Days	300	10	$3,000	$0		$0		$0	$3,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$27,220	$0		$0		$0	$27,220
B. Channel Treatments										
				$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										
R1-Vented Fords	Each	2200	4	$8,800	$0		$0		$0	$8,800
R2-Storm Patrol	Each	1250	3	$3,750	$0		$0		$0	$3,750
R3-Road Drain Dips	Days	4515	2	$9,030	$0		$0		$0	$9,030
T1-Trail Drainage	Days	500	7	$3,500	$0		$0		$0	$3,500
T2-Trail Clearing	Each	500	2	$1,000	$0		$0		$0	$1,000
T3-Trail Signing	Each	25	28	$700	$0		$0		$0	$700
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$26,780	$0		$0		$0	$26,780
D. Protection/Safety										
T1-Trail Danger Tree	Each	500	1	$500	$0		$0		$0	$500
R4-Road Danger Tre	Each	120	6	$720	$0		$0		$0	$720
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$1,220	$0		$0		$0	$1,220
E. BAER Evaluation	Team									
BAER Assesment		8400	1	$8,400			$0		$0	$8,400
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$8,400	$0		$0		$0	$8,400
F. Monitoring										
M1-Silt Fences	Each	750	4	$3,000	$0		$0		$0	$3,000
M1-Mulch Effectivne	Each	2500	4	$10,000	$0		$0		$0	$10,000
M3-Weeds	Days	250	4	$1,000	$0		$0		$0	$1,000
M4-Cultural Sites	Days	300	10	$3,000	$0		$0		$0	$3,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$17,000	$0		$0		$0	$17,000
G. Totals				$72,220	$0		**$0**		**$0**	**$80,620**
Previously approved										
Total for this request				**$72,220**						

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date