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

Date of Report: 01/28/2016

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

[ ] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

[X] 2. Interim Report # 2
[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: Black Canyon

B. Fire Number: WA-OWF-000663

C. State: WA

D. County: Okanogan

E. Region: 06

F. Forest: Okanogan-Wenatchee

G. District: Methow Valley/Chelan

H. Fire Incident Job Code: P6JU89

I. Date Fire Started: August 14, 2015

J. Date Fire Contained: Est. September 30, 2015

K. Suppression Cost: $46,063,700 (Total for Okanogan Complex)

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

M. Watershed Numbers:

6th Field Subwatershed	HUC 12	Total Watershed Acres	Percent of Watershed Burned	Percent burned at High and Moderate
Antoine Creek	170200050506	21132	92	28
Black Canyon Creek	170200080708	15871	59	32
Lake Chelan-Chelan River	170200090305	40690	11	3

Long Draw-Columbia River	170200050507	38721	62	5
McFarland Creek-Methow River	170200080706	25303	12	6
South Fork Gold Creek	170200080703	17935	33	18
Squaw Creek	170200080707	10167	48	22

N. Total Acres Burned: 88,973 (includes 40 acres open water)
NFS Acres(32,735) Other Federal (7,387) State (3,434) Private (45,377)

O. Vegetation Types: Ponderosa Pine-Douglas fir/Bluebunch Wheatgrass

P. Dominant Soils: Volcaninc ash cap soils, rock outcrops and rubble lands.

Q. Geologic Types: Foliated crystalline igneous rocks/ gneiss and schist/ plutonic igneous formations of granite and granodiorite (Davis et. al. 2004).

R. Miles of Stream Channels by Order or Class: 1 mile of Class II; 276 miles of Class III; 1008 miles of Class IV;

S. Transportation System

Trails: 15.8 miles Roads: 111 total miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 6,338 (very low/unburned) 10,579 (low) 11,006 (moderate) 4,813 (high)

B. Water-Repellent Soil (acres): 8,662

C. Soil Erosion Hazard Rating (acres):
1,484 (low) 4,399 (moderate) 23,361 (high)

D. Erosion Potential: 22 tons/acre (area weighted average of moderate and high burn severity)

E. Sediment Potential 940 cubic yards / square mile (area weighted average of moderate and high burn severity)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5

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

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

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 0.73

F. Design Flow, (cubic feet / second/ square mile): 43

G. Estimated Reduction in Infiltration, (percent): 40

H. Adjusted Design Flow, (cfs per square mile): 160

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Introduction

The Black Canyon Fire burned over 88,000 acres in the Methow Valley in steep mountainous terrain and adjacent hillsides. Sparked by lightning, the fire grew rapidly and exhibited extreme behavior during the first several burn periods, due in-part to the combined effects of dry conditions, high winds, and topographic effects.

The Black Canyon Fire is within multiple watersheds on USFS system lands – the Lower Methow River, and Swamp Creek/Columbia River. The fire also burned in the Lower Lake Chelan Watershed and impacted primarily private, state, and some BLM land. The main drainages are Black Canyon, McFarland, Squaw, Antoine Creek and Gold Creek subwatersheds. The elevation range of the entire fire is between about 3,000 feet to 5,200 feet. Topography is dominated by dissected mountains with ridges and long steep side slopes. Slopes are dominantly 30 to 90 percent. Nearly two-thirds of the acreage within the fire has slopes exceeding 50 percent. Drainages are generally narrow and confined.

A percentage of the Lower Methow River watershed burned within the Carlton Complex Fire in 2014. This fire burned 17% of the Gold Creek, 5% of the South Fork of Gold Creek, 33% of the McFarland, 49% of the Squaw Creek, and 41% of the Black Canyon whole subwatersheds. During the 2015 field surveys, the BAER team noted good revegetation in parts of the adjacent 2014 Carlton Complex.

Watershed Response

The primary watershed responses of the Black Canyon Fire area are expected to include 1) an initial flush of ash; 2) rill and gully erosion in drainages and on steep slopes within the burned area; 3) flash floods with increased peak flows and sediment deposition; 4) debris flows. The watershed responses are dependent on the occurrence of storm and melt events and may be greatest with initial storm events. The disturbances will become less evident as vegetation is reestablished, providing ground cover and increasing surface roughness.

Threats to Human Life & Safety

The threat to human life and safety and property from post-fire conditions exists. The soil burn severity (SBS) map shows 15% burned at high and 33% at moderate soil burn severity. Areas of high and moderate burn severity are at risk due to flooding and sedimentation and debris laden flows and/or debris flows.

Threats to human life and safety from flooding, falling trees, rocks, debris flows to life and safety exist in valley bottom areas and in steep burned gulches throughout and downsream from the burned area.

Threats to Property

Forest Service roads, bridges and culverts, recreation sites, private homes and other structures located in valley bottoms adjacent to or in the floodprone areas or near stream channels and are at increased risk for flooding and debris flow.

Threats to Natural Resources

Threat to soil productivity is considered low. Sampling of post-fire soil burn severity and effective ground cover revealed that observations along transects noted the presence and abundance of near surface intact fine roots. Soil burn severity was more often than not deemed low despite high fire intensity. Seeds, fungi, rhizomes, and pliable roots just below the surface hint that the natural recovery of these sites to be potentially rapid (ie., with 1 or 2 growing seasons). Hence it is believed that natural recovery of effective ground cover is the most efficient and cost-effective approach to emergency stabilization and minimizes exposure to safety hazards.

Threats to T& E Species and Critical Habitat

The Methow River currently supports runs of Upper Columbia River summer steelhead (threatened), Upper Columbia River spring Chinook salmon (endangered), Columbia River bull trout (threatened) and their designated "Critical Habitat", as well as coho salmon, cutthroat, red band/rainbow, and Pacific lamprey. The Black Canyon fire burned in the Lower Methow watershed(HUC 5) and here the Methow River is primarily a migration corridor for spring Chinook which spawn in the middle and upper reaches of the Methow River. Steelhead spawning and rearing does occur in the lower Methow and select tributaries including South Fork Gold and Black Canyon; however, similar to spring Chinook salmon the major spawning aggregation is located in the middle and upper reaches of the Methow River. Resident rainbow in Rainy and Squaw Creek may also contribute to the lower Methow steelhead population. Little is known about the resident/fluvial bull trout populations in the lower Methow. Gold Creek and tributaries are the primary stronghold for local bull trout populations in this area and provide the majority of spawning and rearing habitat for these fish.

The probability of fine sediment or a debris flow impacting ESA-listed fish or fish habitat in Black Canyon Creek, South Fork Gold Creek, Squaw Creek, or the lower Methow River from the Black Canyon fires is a Likely (50% to <90%) occurrence within 1-3 years, the magnitude of consequences is moderate (damage to critical fisheries resources resulting in considerable or long term effects) in Black Canyon and South Fork Gold Creeks, and minor (minimal, recoverable, or localized effects) in lower Methow River and therefore, the Risk Level is High (Black Canyon, South Fork Gold) and Low in the lower Methow.

Threats to Cultural and Heritage Resources

There is one unevaluated cultural resources site identified witin the fire perimeter. The threat to the site is very low.

B. Emergency Treatment Objectives:

1. Coordinate with State,County and NRCS on potential postfire effects on downstream values at risk.
2. Mitigate effects changed post-fire watershed response on human life and safety, particularly where Forest roads, bridges, and cross drainages are at risk of damage and where flooding and debris flows present a hazard to road users and recreationists.
3. Reduce the potential for road related surface/mass erosion and accelerated sediment delivery to downstream high value fisheries habitat, private water supplies and private dwellings.
4. Reduce the potential for roads to act as a conduit for overland flow and increasing sediment loading.

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

Land __ % Channel **90** % Roads/Trails **80** % Protection/Safety **90** %

D. Probability of Treatment Success

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

E. Cost of No-Action (Including Loss): 249,200

F. Cost of Selected Alternative (Including Loss): 163,300

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Gregory A. Kuyumjian/Molly Hanson

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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:

Monitoring and control of weed species through chemical means (Early Detection Rapid Response-EDRR) to control new weed infestations within the fire perimeter on ~360 acres.

All treatments will be completed in the spring and fall of 2016. Two herbicide treatments are planned for and the timing will be determined by herbicide effectiveness by species. Treatments for Dalmation toadflax are best at flowering to seed capsule phase and in the fall. St. Johnswort is best treated during pre-bloom and active growth periods. Knapweeds are best treated at spring to mid-bloom growth periods.

Channel Treatments:

1. Fabricate and install 3 trash racks; one on FS Road 4010, and two on FS Road 4010-050.

Roads and Trail Treatments:

1. Road Stabilization on FR 4010-050 (drainage dip and armor the downside face).
2. Administrative closure for trails on FR 8010.
3. Install drainage dip at location of melted culvert FR 8020
4. Pull 44 culverts with appreciable upstream moderate or high burned severity acres and install drivable dips at those locations.
5. If depth of road fill above culvert limits successful installation of safe drivable dips, an armored dip will be placed instead of removing culvert to pass the water across the surface to protect the road prism (see as-built design in Appendix C).
6. Storm Inspection/Patrol- Patrol area during and immediately after storm events to repair, unplug, or aid in drainage of road drainage features along FS Roads to reduce the risk of catastrophic road drainage failure and high sedimentation yield. As the remaining open access for administration and public, it is important to monitor this road. Recommend two person teams to complete the assessment.

7. Fabricate and install a total of 16 (8 on this request) control gates

Protection/Safety Treatments:

1. Send Coordination Letters to Chelan County, Okanogan County, and NRCS
2. Install a total of 21 (6 on this request) warning signs.
3. Work with appropriate agencies and National Weather Service staff to facilitate installation of ALERT Systems for early warning.
4. Ongoing interagency and public communication to share information and findings.

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.)

Part VI – Emergency Stabilization Treatments and Source of Funds Interim # 2

			NFS Lands				Other Lands				All
Line Items	Units	Unit Cost	# of Units	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
EDRR	Acres			$35,000	$0		$0		$0	$35,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$35,000	$0	$0	$0	$0	$0	$35,000
B. Channel Treatments										
Trash Rack	each	6000	3	$18,000	$0		$0		$0	$18,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$18,000	$0		$0		$0	$18,000
C. Road and Trails										
Road Stabilization	miles			$0	$0		$0		$0	$0
Culvert Removal and c	each	1500	44	$66,000	$0		$0		$0	$66,000
Storm Patrol	each	1200	14	$16,800	$0		$0		$0	$16,800
Control Gates	each	6000	8	$48,000	$0		$0		$0	$48,000
Control Gates	each	6000	8	$48,000						$48,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$178,800	$0		$0		$0	$178,800
D. Protection/Safety										
Coordination Letters	each	250	3	$750	$0		$0		$0	$750
Warning Signs	each	250	15	$3,750	$0		$0		$0	$3,750
ALERT Support	each	4000	2	$8,000	$18,000		$0		$0	$26,000
Warning Signs	each	250	6	$1,500	$0		$0		$0	$1,500
Public & Interagency	day	200	10	$2,000						
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$16,000	$18,000		$0		$0	$32,000
E. BAER Evaluation										
Assessment	each	40,000	1	---	$40,000		$0		$0	$40,000
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$40,000		$0		$0	$40,000
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				$247,800	$58,000		$0		$0	$303,800
Previously approved				$212,800						
Total for this request				$35,000						

PART VII - APPROVALS

1. Forest Supervisor (signature) — Date: 1/28/2016

2. Regional Forester (signature) — Date: 12Jul16