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

Date of Report 01-27-2016

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 # 1
[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: First Creek

B. Fire Number: WA-OWF-000695

C. State: WA

D. County: Chelan

E. Region: 06

F. Forest: Okanogan-Wenatchee

G. District: Chelan

H. Fire Incident Job Code: P6J1S9

I. Date Fire Started: 08/14/2015

J. Date Fire Contained: 09/20/2015

K. Suppression Cost: Approximately $4.7 M at time of BAER report.

L. Fire Suppression Damages Repaired with Suppression Funds-Total miles on NFS of fireline 47.3
1. Fireline waterbarred (miles): on-going
2. Fireline seeded (miles): on-going
3. Other (identify): on-going

M. Watershed Numbers: Antilon Creek-Lake Chelan 170200090303, First Creek-Lake Chelan 170200090304, Mitchell Creek-Lake Chelan 170200090302, Twentyfivemile Creek 170200090301

N. Total Acres Burned: 7,443
NFS Acres(5,031) Other Federal (345) State (377) Private (1,690)

O. Vegetation Types: Subalpine fir, Engleman spruce, lodgepole pine, larch, ponderosa pine, Douglas fir, shrubland and some transitional sagebursh grasslands

P. Dominant Soils: Ashy loams and sands ranging from mesic to frigid, with some silt loams in mesic environments. The majority of soils within the fire area are influenced by andic properties.

Q. Geologic Types: Sedimentary, metamorphic (i.e. migmatite) and igneous (i.e. basalt, andesite and rhyolite) Intrusive volcanic and high-grade metamorphic rocks heavily modified by galciers that carved bedrock and deposited sediments in the area which is now occupied by Lake Chelan.

R. Miles of Stream Channels by Order or Class: Total miles of stream 13.7
1.5 miles of 3rd order; 10.1 miles of 4th order streams; 1.7 miles of unknown.

S. Transportation System (on NFS)

Trails: 0 miles; Roads:11.35 miles (1.92 miles Level 1; 9.44 Level 2); Total road miles: 31.47 all; 20.12 private

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1556 30% (low) 1627 32% (moderate) 702 14% (high) 450 (rock) 696 (Unburned)

B. Water-Repellent Soil (acres): 2,670

The extent of water repellent soils is estimated to be 2670 acres or 50% of the moderate and high burn severity areas from limited collection of field data. However, observations indicated strong repellency at the surface over several vegetation types and moderate to high burn severities.

C. Soil Erosion Hazard Rating (acres):
32 (low) 347 (moderate) 7066 (high)

D. Erosion Potential: 26 tons/acre

E. Sediment Potential: 1182 cubic yards / square mile

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):	0.88"
F. Design Flow, (cubic feet / second/ square mile):	3
G. Estimated Reduction in Infiltration, (percent):	50
H. Adjusted Design Flow, (cfs per square mile):	250

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The First Creek Fire burned 5,031 acres in an area that had burned in 2012 as part of the Wenatchee Complex. A BAER team began assessing the area for post-fire emergencies on September 14, 2015. In that time the team has identified the following values at risk to post-fire threats.

Human Life & Safety

Threats to life and safety and property exist in valley bottom areas and in steep burned drainages throughout and downsream from the burned area. Residents and road users will be exposed to increased risk of flooding and debris flows. Houses and other structures, driveways, other private property, county and Forest Service roads 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.

In several locations, structures and roads are located on alluvial and debris flow fans at the outlets of severely burned gulches and are at increased risk for debris-laden flows. The threat to human life and safety and property from post-fire conditions exists. The Maple Creek, Slide Ridge and southern tributary to Twentyfive Mile Creek drainages are expected to have increases in postfire flows by over one order of magnitude. The culvert at the outlet of Maple Creek is undersized and will not be able to pass the flood flows.

Threats to Property

Threats to roads and culverts, recreation facilities, 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. In several locations, structures and roads are located on alluvial and debris flow fans at the outlets of severely burned gulches and are at increased risk for debris-laden flows.

The South Lakeshore Road (Chelan County), Forest Service and private roads within the burned area are at risk. Roads within the burned area are at risk from impacts from increased water, sediment, and/or debris. Impacts include damage to the road and/or loss of access due to severe erosion of the road surface, or deposition of sediment or debris. Increased risk for temporary loss of access/egress exists on major throughfares and on un-paved roads within the burned area. Any damage to, or blocking of, South Lakeshore Road, Forest Service Roads and/or private roads, could inhibit access to residents or emergency service providers. Forest Road 125 has inadequate cross-drainage for anticipated post wildfire flows.

Threats to Natural Resources

The risk to natural resoucres such as soil productivity and hydrologic function is high. The probability is is high that rates of soil erosion and sediment delivery to stream channels will be significantly higher in moderate and high soil burn severity areas. This loss of water control, erosion and sediment delivery will impact Essential Fish Habitat within close proximity to the burn area.

First Creek Values At Risk Evaluation

The BAER team began assessing the area for post-fire emergencies on September 14, 2015. In that time the team has identified the following values at risk to post-fire threats. Interim reports may be submitted as additional assessments are completed.

The risk matrix below, Exhibit 2 of Interim Directive No.: **2520-2014-1** was used to evaluate the Risk Level for each value identified during Assessment. Only values at risk that had a risk of Intermediate or above are discussed.

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	RISK		
Very Likely	**Very High**	**Very High**	**Low**
Likely	**Very High**	**High**	**Low**
Possible	**High**	**Intermediate**	**Low**
Unlikely	**Intermediate**	**Low**	**Very Low**

Values at risk	**Risk and emergency**
Human life and safety on National Forest System (NFS) roads. FR8410 is the main travel route in the burn area along Slide Ridge. Four culverts on FR 125 (ML2) have been blocked and overtopped. Additional culvert blockage and failure is anticipated. Portions of road prism could be lost with the culvert failures. FR 119 is access road to communication site. FR 234 closed road on would remain closed. South Lakeshore Road (County Road) provides access to private homes and business along Lake Chelan.	Probability of damage or loss = Likely Magnitude of consequence = Major Risk = High Emergency treatment needed = Yes Emergency actions needed = Yes
Human life and safety at the Fields Landing Point recreation site. The threat to Fields Landing Point is intermediate for the southern loop of the parking area. There is a drainage with limited acres of moderate and high severity that flows directly to the parking area and a private residence nearby. The drainage is mostly rock.	Probability of damage or loss = Possible Magnitude of consequence = Moderate Risk = Intermediate Emergency treatment needed = No Emergency actions needed = Yes
Threats to Property-Damage to National Forest System roads. All roads in the burned area may be affected in some way from ravel, rock fall or trees blocking the roadway, culverts blocked and overtopped with and without embankment failure, debris flows depositing on the roadway or removing portions of the road prism. (With the exception of FR 234 which rated out as possible and Minor = L)	Probability of damage or loss = Likely Magnitude of consequence = Moderate Risk = High Emergency treatment needed = Yes Emergency actions needed = Yes
Threats to Property-Damage to infrastructure at Fields Landing Point The threat to Fields Landing Point is intermediate for the southern loop of the parking area.	Probability of damage or loss = Unlikely Magnitude of consequence = Moderate Risk = Low Emergency treatment needed = No Emergency actions needed = No

Values at risk	Risk and emergency
Threats to Property-Damage to Fields Point Pumphouse The threat to Fields Landing Point is intermediate for the southern loop of the parking area. The pump house is out of this area.	Probability of damage or loss = Unlikely Magnitude of consequence = Moderate Risk = Low Emergency treatment needed = No Emergency actions needed = No
*Threats to Property-Damage to Snowberry Campground*The threat from flooding, falling trees is unlikely for this recreation site.	Probability of damage or loss = Unlikely Magnitude of consequence = Moderate Risk = Low Emergency treatment needed = No Emergency actions needed = No
Threats to Property-Damage to Pot Peak Trailhead The threat from flooding, falling trees is unlikely for this recreation site.	Probability of damage or loss = Unlikely Magnitude of consequence = Moderate Risk = Low Emergency treatment needed = No Emergency actions needed = No
Threats to Natural Resources-Hydrologic conditions The threat (loss of water control) is exaccerbated by a high proportion of high and moderate soil burn severity within the watersheds. The risk of flooding and erosional events will increase as a result of the fire, creating hazardous conditions within and downstream of the burned area. These hazardous conditions may be worsened in the case of a rain-on-snow event, where long-duration rainstorms falling on a shallow snowpack can produce very high peak flows.	Probability of damage or loss = Very Likely Magnitude of consequence = Risk = Major Emergency treatment needed = Yes Emergency actions needed = Yes
Threats to Natural Resources-Soil productivity Losses due to erosion in high and moderate soil burn severity areas are likely to affect soil productivity. The extent and degree of changes is unknown. Loss of productivity due to erosion is considered to be a long-term but recovery of hill-slope stability is likely to occur within 3-5 years following the fire.	Probability of damage or loss = Likely Magnitude of consequence = Minor Risk = Low Emergency treatment needed = No Emergency actions needed = No
Threats to Natural Resources-Essential Fish Habitat Threats to the landlocked kokanee salmon in First Creek, Twentyfive Mile Creek and Lake Chelan. Region 6 Sensitive Species Pygmy whitefish (Lake Chelan) and Westslope cutthroat trout.	Probability of damage or loss = Very Likely Magnitude of consequence = Minor Risk = Low Emergency treatment needed = No Emergency actions needed = No

Values at risk	Risk and emergency
Threats to Natural Resources-Native or naturalized communities. There are populations of Diffuse Knapweed (Class B noxious weed) along the travel routes in the burn area. Nearby infestations of knapweed were likely to move into the burned area, due to the wind-blown dispersal nature of the seed and the inability of the existing native seed bank to offer natural competition.	Probability of damage or loss = Likely Magnitude of consequence = Moderate Risk = High Emergency treatment needed = Yes Emergency actions needed = No

B. Emergency Treatment Objectives:

1. Mitigate effects of changed post-fire watershed response on human life and safety, particularly where Forest roads and cross drainages are at risk of damage and where floods and debris-laden flows present a hazard to Forest Service visitors and road users on private roads and South Lakeshore Road.
2. Coordinate with partner agencies to mitigate the risk to human life and safety on roads and downstream communities.
3. Mitigate effects of changed post-fire watershed response on Forest Service developed sites such as campgrounds and administrative sites.
4. Mitigate the potential for loss or damage of road infrastructure within the burn area.

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

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

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	90%	70%	n/a
Protection/Safety	90%	90%	n/a

E. Cost of No-Action (Including Loss): **>40,000**

F. Cost of Selected Alternative (Including Loss): **24,000**

G. Skills Represented on Burned-Area Survey Team:

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

[X] Fisheries [ ] Research [ ] Landscape Arch [X] 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 ~80 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:

No treatments proposed with this initial request.

Roads and Trail Treatments:

Forest Road 125: Remove culverts along FR 125 that have the potential to be plugged to provide uncontrolled overland flow with increasing sediment and debris loading and to prevent local road failure.

The road within the burned area may be affected by slope ravel, rock fall, cross-drain failure, culvert bockage or failure, or debris flows. Four culverts were identified as undersized to pass expected flows. The upper three culverts are currently completely plugged and the lower one is partially plugged.

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).

Protection/Safety Treatments:
Signs will be posted by roads, trailheads, and campgrounds. Install warning signs at all access routes into the burned area.Warning signs will include Fallen Rock and Debris, Flash Flood Area, Next XX Miles, Entering Burned Area, Stay on Roads and Trails will be installed to meet Manual ofUniform Traffic Control Devices (MUTCD) standards.

Place 2 closure gates on Road 125 and post warning signs at key access points of the burn area to protect the public from entering the burned area and preventing exposure to the hazards of the burned area.

Work with the National Weather Service and Washington Department of Ecology to facilitate location and placement of two alert stations for the areas effected by the First Creek fire.

Support installation for up to two of ALERT precipitation systems. Field verification and expedited processing for the issuance of temporary emergency Special Use Permits for stations on National Forest System lands. This includes resources to process the permit, assist the appropriate agencies through the

permitting process and provide the resource specialists to allow for rapid and immediate site clearance (e.g. Archaeologist for SHPO clearance).

Send letters to Chelan County Manger/County Engineer, Chelan County Commissioners, City of Chelan, Washington Department of Fish & Wildlife (25 Mile spawning channel), Lake Chelan State Park, and 25 Mile State Park. Letters to include notification of potential increased run-off and sediment delivery on to lands under their jurisdictions.Storm Inspection to Patrol area during and immediately after storm events to repair, unplug, or aid in drainage of road features along FS Roads

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.)

Use of USGS landslide/debris flow modeling is limited in Eastern Washington due to lack of claibration. Work with USGS and Washington DNR to allow placement of two recording raingages within or immediately adjucant to the burned area. Analysis and result to be performed by the USGS and shared appropriately with the Forest Service and others.

Post-wildfire rain gages

The USGS Landslide Hazards Program requests permission from the Okanogan-Wenatchee National Forest to install three non-telemetered rain gages as part of a 2-year research effort to improve predictions of post-wildfire debris-flow hazards. Two gages would be installed in the 2015 First Creek Fire. A third would be installed in the 2014 Duncan Fire.

Standards and technical specifications:
A rain gage installation will consist of a rain gage cylinder six inches in diameter and eight inches in length mounted adjacent to the top of a standard fence post which is driven up to 2 feet into the ground. Four stabilizing guy wires will extend up to 3 feet from the fence post, and will be anchored to the ground by 18 in lengths of rebar driven into the ground. Including the guy wires, the footprint of the installation will not exceed 6 square feet. Ground disturbance will be only by the fence post and the stabilizing rebar, and will be less than one cubic meter per acre.

Proposed Locations:

USGS Rain Gage 1 (2015 First Creek Fire)
Lat: 47.946597° Lon: -120.245693°

USGS Rain Gage 2 (2015 First Creek Fire)
Lat: 47.925618° Lon: -120.242835°

USGS Rain Gage 3 (2014 Duncan Fire)
Lat: 47.997380°Lon: -120.544561°


N48
W120.525
W120.475
W120.425
W120.375
W120.325
W120.275
W120.225
W120.175
N47.95
N47.9
Google earth

Part VI – Emergency Stabilization Treatments and Source of Funds Interim

			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										
Noxious Weeds/EDRR				$16,000	$0		$0		$0	$16,000
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$16,000	$0		$0		$0	$16,000
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										
Culvert Removal/Armo	each	1500	4	$6,000	$0		$0		$0	$6,000
Storm Inspection/Resp	day	1200	4	$4,800	$0		$0		$0	$4,800
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$10,800	$0		$0		$0	$10,800
D. Protection/Safety										
Warning Signs	each	250	6	$1,500	$0		$0		$0	$1,500
Gates	each	6000	2	$12,000	$0		$0		$0	$12,000
ALERT Support	each	4000	2	$8,000	$18,000					$26,000
Letter to Cooperators	each	250	6	$1,500	$0		$0		$0	$1,500
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$23,000	$18,000		$0		$0	$41,000
E. BAER Evaluation										
	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										
USGS Landslide Cali	each	4000	2	$8,000	$10,000		$0		$0	$18,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$8,000	$0		$0		$0	$18,000
G. Totals				$57,800	$58,000		$0		$0	$125,800
Previously approved				$41,800						

PART VII - APPROVALS

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

2. Regional Forester (signature) — Date: 12 Feb 16