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: Limebelt

B. Fire Number: WA-OWF-000663

C. State: WA

D. County: Okanogan

E. Region: 06

F. Forest: Okanogan-Wenatchee

G. District: Tonasket

H. Fire Incident Job Code: P6J1SP

I. Date Fire Started: August 14, 2015

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

K. Suppression Cost: $46,063,700 (Total Cost 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:

Subwatershed Name and HUC	Acres
Alkali Lake-Okanogan River, 170200062102	5,513
Coulee Creek, 170200062103	15,814
Green Lake-Salmon Creek, 170200062004	16,640
Headwaters Sinlahekin Creek, 170200071901	<1
Johnson Creek, 170200062104	20,636
Lower Loup Loup Creek, 170200062203	5,656
North Fork Salmon Creek, 170200062003	3,631
Pine Creek, 170200062101	12,708

South Fork Beaver Creek, 170200080606	3,445
South Fork Salmon Creek, 170200062002	4,389
Summit Creek, 170200062202	3,801
Swipkin Canyon-Okanogan River, 170200062106	6,983
Tallant Creek-Okanogan River, 170200062205	12,918
Upper Loup Loup Creek, 170200062201	13,730
Upper Sinlahekin Creek, 170200071902	7,113
Whitestone Coulee-Okanogan River, 170200061808	141

N. Total Acres Burned: 133,438
NFS Acres(11,483) Other Federal (9,730) State (50,630) Private (61,595)

O. Vegetation Types: Ponderosa pine/Douglas fir

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

Q. Geologic Types: Principle bedrock materials of the Schallow Mountain area consist of foliated crystalline rocks such as gneiss and schist that are characterized as landtypes derived from continental glacial influence such glaciated mountain slopes and meltwater canyons, while the Buck Mountain area of the south Fork Salmon Creek is underlain by massive crystalline igneous rocks in the valley bottom and foliated crystalline rocks on the upper valley walls, again with the imprint of continental glacial landforms.

R. Miles of Stream Channels by Order or Class: 21 miles (Class I & Class II); 27 miles (Class III & Class IV)

S. Transportation System

Trails: 2.8 miles Roads: 30 miles (10.6 miles ML1; 13.6 miles ML2; 5.6 miles ML3)

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1178 (very low/unburned) 4753 (low) 3870 (moderate) 1683 (high)

B. Water-Repellent Soil (acres): ~3500

C. Soil Erosion Hazard Rating (acres):
1743 (low) 5151 (moderate) 7424 (high)

D. Erosion Potential: 15 tons/acre (weighted average of moderate and high soil burn severity)

E. Sediment Potential: 431 cubic yards / square mile (weighted average of moderate and high soil burn severity)

PART IV - HYDROLOGIC DESIGN FACTORS

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

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

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

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 0.76

F. Design Flow, (cubic feet / second/ square mile): 12

G. Estimated Reduction in Infiltration, (percent): 50

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

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

A BAER team began assessing the area for post-fire emergencies on September 20, 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

Of the basins on FS land involved in the Lime Belt fire, the headwaters of South Fork Salmon River below Buck Mountain has the greatest area impacted by fire. Smaller tributary headwaters in the Schallow Mountain area also experienced high severity fire effects. Based on BARC mapping and field reconnaissance, the upper basin of South Fork Salmon Creek and northeast facing drainages off of Funk Mountain experienced high severity fire effects. There are a few private residences above Conconully Reservoir, and Surgarloaf Campground in the Schallow mountain area.

Threats to Human Life & Safety

The threat to human life and safety is high from flooding and debris flows. There are contiguous patches where soil burn severity was moderate to high. Notable patches are located on the upper slopes of Salmon Creek. The potential for accelerated erosion to transport sediment to these stream reaches is very high, and the cumulative bulking of materials that can be expected to erode from these slopes combined with the deposits that currently exist in the channel are very likely to increase the effect of runoff and flooding to the stream channel by an order of magnitude. Property and infrastructure such as roads that are below these drainage-ways are at risk of damage if a runoff event of sufficient magnitude were to occur, particularly at the upper reaches of Salmon Creek.

Threats to Property

The threat to property from flooding and debris flow is high for the same reasons listed above in human life and safety.

Sugarloaf Campground is adjacent to Sugarloaf Lake. There are 4 campsites available with picnic tables and fire rings. A toilet facility is available. No water or garbage service on site. Groomed snowmobile routes are located on FS Roads 4235 and 4200. A few hiking trails are also located in the effected fire area; Beaver Lake, Schallow, and Sugarloaf Lake. The access road to the campground was also affected by the fire. Additional assessment is needed to determine if any hazard trees exist within the campground. Approximately 6.85 miles of groomed snowmobile routes are found in or along the perimeter of the fire. Of those snowmobile miles 2.7 burned in moderate to high severity. The hiking trail to Beaver Lake, trail #356, received 0.38 miles of moderate severity burns. Schallow trail #361 received 0.36 miles of moderate severity burn. Due to time constraints not all trails were surveyed. Further assessment by the district will help determine which trails should be closed to the public.

Threats to Natural Resources

Soil Productivity in the ash-cap and till soils is generally moderate to high, and low to moderate in the colluvium. They are capable of supporting fully stocked stands of forest ecotypes. Ash-cap and till soil types are fairly resilient, and they have a natural ability to recover (reestablishment of effective ground cover and vegetation) from disturbance within a relatively short timeframe (less than 5 years). Many of the slopes dominated by rock outcrops however are sparsely vegetated by comparison, and less resilient. The volcanic ash mantle of these soils inherently exhibits weak to moderate hydrophobic tendencies, depending upon their moisture status. When dry the topsoil can be moderately repellent to the infiltration of water at the surface and to a depth of about 6 inches. When moist they are less repellent. Hydrophobic tendencies heighten runoff potential, and can exacerbate the amount and rate of runoff. When effective ground cover has been denuded, such as after intense wildfire, runoff can become rapid and erosion accelerated, resulting in soil loss that diminishes soil productivity and an increase in sedimentation.

Threats to T& E Species and Critical Habitat

Unknown at this time

Threats to Cultural and Heritage Resources

There are two cultural sites that are not at risk from postfire flooding or erosion. One site is the Buck Mountain Lookout which sustained minimal fire damage to the wooden towner but is owned by the Department of Natural Resources. The other site is a lithic scatter in an area of low to unburned burn severity.

B. Emergency Treatment Objectives:

1. Reduce the potential for accelerated surface runoff damaging Forest Service roads within and directly downstream of the fire areas in headwaters directly affected by the fire.
2. 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.
3. Reduce the potential for debris "bulking" has a potential debris flow encounters a road-related drainage structure.
4. Reduce the potential for roads to act as a conduit for overland flow and increasing sediment loading.
5. Reduce road-related hazards related to the burned area.

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

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

D. Probability of Treatment Success

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

E. Cost of No-Action (Including Loss): 86,000

F. Cost of Selected Alternative (Including Loss): 36,900

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	[ ] GIS	

Team Leader: Gregory A. Kuyumjian/Molly Hanson

Email: gakuyumjian@fs.fed.us/mahanson@fs.fed.us Phone: (509) 664-9330 FAX:

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 ~90 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 channel treatments proposed with this request.

Roads and Trail Treatments:

1. Remove 3 culverts on 4200 and install drainage dips on FS 4200. 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).

2. Killer tree mitigation on two miles of FS Road 100 (level 3) within one tree height of each side of the road.

Protection/Safety Treatments:

1. Send letters to cooperators: County Commissioners, County Engineer and NRCS
2. Install a warning sign on Beaver Lake Trailhead
3. I Install 6 signs on FS 100 and FS 42 at access points to burn area.
4. Administer a closure of groomed snowmobile routes on FS Roads 4235 and 4200
5. Pump and sanitize toilets at Sugar Loaf Campground
6. Install two gates on FR42
7. Work with appropriate agencies including the National Weather Service to facilitate installation of an ALERT system for early warning

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 #_1

			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/Noxious Weeds				$8,300	30		$0		$0	$8,300
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$8,300	$0		$0		$0	$8,300
B. Channel Treatments										
None proposed				$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										
Remove culverts and install drainage dips/or armored dips	each	1500	3	$4,500	$0		$0		$0	$3,600
"danger" tree treatmen	acre	350	36	$12,600	$0		$0		$0	$12,600
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$17,100	$0		$0		$0	$16,200
D. Protection/Safety										
Coordination Letters	each	250	3	$750	$0		$0		$0	$750
Pump and sanitize toilets	each	1000	1	$1,000	$0		$0		$0	$1,000
Signs	each	250	5	$1,250	$0		$0		$0	$1,250
Gates	each	6000	2	$12,000						
ALERT Support	each	4000	1	$4,000	$9,000					$13,000
Storm Patrol	each	$1,200	4	$4,800						$4,800
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$23,800	$9,000		$0		$0	$20,800
E. BAER Evaluation										
Assessment	each	20000	1	---	$20,000		$0		$0	$20,000
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$20,000		$0		$0	$20,000
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				$49,200	$29,000		$0		$0	$65,300
Previously approved				$40,900						
Total for this request				$8,300						

PART VII - APPROVALS

1. _____ 1/28/2016
Forest Supervisor (signature) Date

2. _____ 12 Feb 16
Regional Forester (signature) Date