USDA United States Department of Agriculture | Forest Service | Okanogan-Wenatchee National Forest | 215 Melody Lane Wenatchee, WA 98801 TTY (509) 664-9201 Voice (509)664-9200

File Code: 2520
Date: October 15, 2012

Kent Connaughton
Regional Forester
Pacific Northwest Regional Office
333 SW First Avenue
Portland, OR 97204-3440

This is an initial request for funding of treatments identified in the enclosed Burned Area Emergency Response (BAER) Report (FS 2500-8) for the Okanogan Complex of the Central WA Fire Incident. It contains our request for $24,695 in WFSU-SULT funds. This incident occurred in the northern portion of the Okanogan-Wenatchee National Forest, Methow Ranger District in Okanogan County, Washington. The Okanogan Complex burned area encompasses approximately 13,547 acres. There are approximately 11,536 acres of National Forest administered land, 256 acres of BLM Land, 441 acres of WA State and 1,300 acres of privately owned land within the Okanogan Complex Fire perimeter.

Resource specialists developed specific recommendations that will not result in detrimental effects to the human environment. Reports of existing conditions, maps, photos, and various other items related to the BAER assessment are final or near final are being filed at: O:\NFS\OkanoganWenatchee\Project\ForestWide\2520BAER\OkaWenFireComplexes2012

BAER consists of emergency actions needed to prevent loss of lives and property or to mitigate unacceptable resource degradation. I have reviewed the Report and determined that actions are consistent with current national BAER direction Interim Directive No. (FSM id_2520-2012-1) and will not have significant impacts.

If you have questions regarding this request, please contact Central WA Fire BAER Team Leader Tommy John at (303) 275-5583 or Greg Kuyumjian at (509) 664-9330. Stuart Woolley, (509-679-4281) has been identified to be the Acting BAER Implementation Leader.

Sincerely,

REBECCA LOCKETT HEATH
Forest Supervisor

cc: Tommy John, Greg Kuyumjian, Karen A Bennett

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

Date of Report: **10-15-2012**

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:

Okanogan Complex						
District	Fire Name	Fire #	Fire Incident Job Code	Watershed (HUC5)	Watershed Name	Acres Burned
Methow	Leecher	WA-OWF-610	P6G75A	1702000807	Lower Methow River	1,320
	Buckhorn	WA-OWF-610	P6G75A	1702000807	Lower Methow River	4,638
	Hunter Mountain	WA-OWF-610	P6G75A	1702000807	Lower Methow River	211
	Goat Fire	WA-OWF-649	P6G8EZ	1702000807/ 1702000505	Lower Methow River/ Swamp Creek-Columbia River	7,378
Total Acres Burned						**13, 547**

A. State: **Washington**

C. Region: **RO6**

B. County: **Okanogan**

D. Forest: **Okanogan-Wenatchee**

E. Date Fire Started: **9/9/2012 (Leecher, Buckhorn and Hunter Mt. Fires); 9/15/2012 Goat Fire**

F. Date Fire Contained: **90% Containment as of 10/12/2012**

G. Suppression Cost: **Goat Fire (9/22/2012) - $2,855,571**

Okanogan Complex (9/30/2012) - $7,916,000

H. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): **UNKNOWN**
2. Fireline seeded (miles): **UNKNOWN**
3. Roads: **Roughly 100% of the roads used during suppression will be treated under suppression rehab to address immediate concerns caused during fire suppression activities, including re-establishing closures on those maintenance level 1 roads used for suppression, and those roads outside the fire perimeters but used heavily for suppression access.**

I. Total Acres Burned: **13,547 Total Acres**

NFS Acres **(11,536)** Other Federal **(256)** State **(441)** Private **(1,300)**

J. Vegetation Types: **The Goat Fire is a mixed Ponderosa pine/bitterbrush and Douglas fir/ponderosa pine series. Riparian forests were restricted to the narrow stream corridors. Rock outcrops are found throughout the fires and are a dominate feature that contained an additional plant and lichen community common to either granites or sandstone formations.**

K. 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.**

L. Geologic Types: **Sedimentary, metamorphic (i.e. migmatite) and igneous (i.e. basalt, andesite and rhyolite)**

M. Miles of Stream Channels by Order or Class: **25.8 Total Stream Miles**

(22.9 miles of intermittent; 2.9 miles of perennial)

N. Transportation System

Trails: **1.5 miles**

Roads: **31 miles (Level 1 (closed) – 14 miles; Level 2 – 4 miles; Level 3 – 4 miles; non-Forest Service – 9 miles)**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): **Low (4,607)** **Moderate (1,543)** **High (927)**

Soil Burn Severity Mapping was conducted from Oct 6th to Oct 10th. Once BARC mapping arrived it showed predominantly low burn severity for all fires but one. Validation of the Burned Area Reflective Classification (BARC) occurred from two flights over the Fire area and ground visits to predetermined locations. The flight validation confirmed or adjusted spatial boundaries. BARC values were validated or adjusted based on pre-identified site locations for BARC values of low,

moderate and high. An additional inconsistency was found in the BARC mapping. In this case the presence of high burn severity was found under a green canopy. BARC values indicated that these areas were either unburned or underburned. The soils cadre felt this underestimate of severity was obscured by the canopy. Often these fire effects were consistent with High Soil Burn Severity effects and very often this condition occurred on very steep slope with ash deposits of 2-4 inches. It was postulated that depth of duff, topography and burning conditions formed the conditions to create this effect (MacDonald & Huffman, 2004 and DeBano, 2000). This effect was noted in both the Wenatchee Complex (Peavine and Poison Fires) and the Okanogan Complex (Buckhorn Fire), but may exist in all complexes.

B. Water-Repellent Soil (acres): **927 acres**

Due to the size of the fire, depth of hydrophobic effects and topography of the fire area; only high soil burn severity was determined to have strong contiguous water repellency.

C. Soil Erosion Hazard Rating (acres): **Low (4,563)** **Moderate (6,522)** **High (1,966)**

D. Erosion Potential: **23 tons/acre**

There is potential for accelerated erosion from the effects of the fire. Modeling shows that 3,200% increase over natural erosion rates. The increased erodible soil can result in downstream sediment, which can bulk flows resulting in increased flooding impacts, this sediment can impair critical habitat for T&E species. The loss of soil can impair soil productivity in the short and potentially long term future.

E. Sediment Potential: **450 cubic yards/square mile**

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	**5**
B. Design Chance of Success, (percent):	**80**
C. Equivalent Design Recurrence Interval, (years):	**25**
D. Design Storm Duration, (hours):	**24**
E. Design Storm Magnitude, (inches):	**2.4**
F. Design Flow, (cubic feet / second/ square mile):	**30**
G. Estimated Reduction in Infiltration, (percent):	**50**
H. Adjusted Design Flow, (cfs per square mile):	**150**

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

HUMAN LIFE/SAFETY and PROPERTY

Threats to life and safety and property exist in valley bottom areas and in steep burned gulches throughout and downsream from the burned area. Residents and road users will be exposed to increased risk of flooding and debris flow. Houses and other structures, driveways, other private property, Forest Service recreation facilities, and roads and trails 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 flows. Water diversion infrastructure is at risk due to sediment and debris accumulation. Numerous ponds and small reservoirs within the burned area are at increased risk of filling with sediment and/or dam failure.

Roads

There are several miles of critical fish habitat and crossings located outside and downstream of the fire perimeters which may be directly affected by the fire intensity and acreage burned within the headwaters and upper portions of the watersheds.

The Okanogan Complex can be separated into two categories from a transportation system: a) fires in which the road system is primarily located along the ridge line (fire reviewed: Goat) and post-suppression rehab should be adequate to meet the needs; b) fires in which the road system has major sections located within the flood plain or downslope of the fires and the topography has a history of debris flows or large sediment movement (fire reviewed: Buckhorn). In these fires, field surveys reaffirmed the potential for overtopping of undersized culverts, lateral stream movement into the road prism, potential drainage plugging with sediment and debris movement and damage to the road infrastructure along with a likelihood of impacts on fisheries habitat. Based on the BAER team's risk rating exercise, treatments were identified for each of the above fires, but only the Buckhorn fire had a risk rating of HIGH and will be submitted at this time for potential funding.

Trails:

There were no emergencies identified to recreation values for this complex

NATURAL RESOURCES

Soils

High and moderate soil burn severity in all complexes may impact soil productivity. It is assumed that both severity classes will react similarly and are considered to produce an erosion potential that will create a loss to soil productivity. The majority of the area is too gentle to warrant treatment, when Soil Burn Severity mapping is compared with acceptable slopes for treatment (20% to 50%). The remaining acreages were too small to justify purchase of supplies, mobilization of equipment. Since this is a rapid assessment it is recommended that the forest conduct additional survey to see if any ground treatments are warranted, especially within the areas of High Soil Burn Severity that are under green canopy.

Hydrology

The potential values at risk identified include road and trail infrastructure, human life and safety, and water quality, due to increased debris flows and floods. The models within the **Okanogan Fire Complex** show increased peak flows. While there are large percentage changes in Buckhorn the magnitude of the amount of flows that are anticipated are not expected to cause widespread problems within the land form. There may be localized problems due to the increase.

T&E Plants

Impact of the fire and fire suppression activities on federally and state listed plant species may reduce a species existing distribution and result in a loss of species viability or create significant trends towards federal listing.

Noxious Weeds

Establishment and expansion of the invasive plant species into burned areas and the areas of suppression activity are at risk to become new infestations. Invasives species have the potential for native vegetation, and listed plant species community conversion. Both wildlife and humans may be affected by these plant community conversions through impacts to forage, shelter or increased fire hazards.

T&E Wildlife

The species known to occur in or near the fire complexes include the northern spotted owl (Strix occidentalis caurina), and a suite of wide-ranging carnivores: gray wolf (Canis lupus), north American wolverine (Gulo gulo), Canada lynx (Lynx canadensis), and grizzly bear (Ursus arctos horribilis). Wide ranging carnivore species were not likely directly impacted by the fire. They are mobile and are generally able to escape a fire, although, disturbance from the fire itself and suppression activities, as well as habitat loss, may have displaced individual animals. Although spotted owl habitat may be found across a large portion of the OWNF, proposed treatments have focused on the Wenatchee Complex and Table Mountain. No treatments are proposed for the Okanogan Complex.

T&E Fisheries

Within the Okanogan Complex there will localized negative effects to aquatic habitat, listed fish and CHU (Buckhorn Fire). Many of the fires in the Okanogan Complex will have limited un-measurable effects to listed fish and habitat and are not addressed in this report. No activities to mitigate the effects are likely to be successful at reducing these effects (except for road work proposed in the Buckhorn Fire).

Cultural Resources

Following GIS analysis no cultural resources were identified within the fire APE.

B. Emergency Treatment Objectives:

HUMAN LIFE/SAFETY and PROPERTY

Roads:

Implement actions within the Okanogan Complex to:

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.

NATURAL RESOURCES

Noxious Weeds:
The areas that had high severity fires are at a greater risk for invasion by noxious weeds species. Both noxious weed seeds present in the seed bank those introduced during suppression efforts pose a high risk of replacing the native plant community, thus affecting the entire succession of post burn plant communities. The weeds identified to be controlled are all known to benefit by fire through increased seed germination and being highly competitive in bare and disturbed soils.

T&E Fisheries
Within the Okanogan Complex, reduce the adverse effects of the Buckhorn Fire on Upper Columbia River Steelhead, Upper Columbia River Spring Chinook Salmon and Bull Trout. Emergency road treatments on the 4330 road will reduce the negative effects.

Hydrology/Increased Stream Flow
Provide for public safety due to anticipated increases in flood stormflows and potential for debris torrents that could cause great concern for public safety, private homes and property, infrastructure values including U.S Forest Service roads and recreation facilities.

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

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

D. Probability of Treatment Success

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

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

F. Cost of Selected Alternative (Including Loss):

G. Skills Represented on Burned-Area Survey Team:

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

USFS Team Leader: Tommy John. Email: tjohn@fs.fed.us. Phone: 303/275-5583

A Forest Service BAER team was was assembled to conduct the burned area assesment and the BAER process of evaluating burned area conditions, critical values at risk, threats, risk and treatments was employed. Because the fire burned both NFS and non-federal lands, inter-disciplinary and inter-agency coordination occurred throughout the process. External partners and their agancies are listed below.

Forest Service BAER Team Members (core team)

Forest ServiceTeam Lead	Tommy John
Logistics	Greg Kuyumjian
Soils	Jim Archuleta/Ted Huffman
Hydrology	Jennifer Hickenbottom/Rob Lawler/Matt Karrer/Bill Ehinger
Affected Interest Liason	Liz Schnackenberg
NoxiousWeeds/Botany	Migonne Bivin/Helen Lau
Engineering	Peggy Fisher/Lou Leibbrand
Recreation	Randy McLandress/Angela McPhee/Bob Stoehr/TJ Broom
Wildlife	Andrea Lyons
Fisheries	Bob Nichols/Emily Johnson
Cultural Resources	Lindsey Smith/Powys Gadd
GIS	Dorothy Thomas/Julia Gower
Public Information	Cathleen Thompson

External Partners and Contacts

Jeff Krupka	USFWS
Neal Hedges	Chelan-Douglas Land Trust
Katherine Rowden	National Weather Service
Julie Sanderson	Noxious Weed Department of Chelan County
Keith Goehner	Chelan County Commisioner
Amy Hendershot	NRCS
Tina Duffey	Chelan-Douglas Land Trust
Jason Detamore	Chelan County Public Works
Christina Wollman	Kittitas County
Eric Ellis	BLM
Ron Walters	Chelan County Commissioner
David Toften	WADOT
Von Pope	Chelan County PUD
Pete Lopushinsky	WDFW
Ray Faini	WSU extension
Tracy Valentine	City of Leavenworth
Justin Yeager	NOAA Fisheries
Mike Rickell	Cascadia Conservation District
Anna Lael	Cascadia Conservation District

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:

Noxious Weed – It is critical to begin controlling invasive plants and treatments will be proposed in the spring of 2013. These species will quickly establish within these burn areas, dominate the vegetation, and impede the natural revegetation of the site by natives.

Channel Treatments:

Roads and Trail Treatments:

Roads

- **Buckhorn Fire**

Treatment #R1 –Surface Water Management: Clean inlets and outlets of existing relief culverts and those culverts in active stream channels to reduce the buildup of sedimentation which may lead to fill failure along road grades >2% within or directly downslope or downgrade of moderately to high intensity burn areas in areas contiguous with critical fisheries habitat.

Treatment #R2 – Construct/Improve Armored Drainage Sag: Construct outsloped drain sags with armoring to improve ditch relief and the ability of roads to better handle anticipated increases in surface runoff including debris and help prevent bulking of debris flows. May be used in conjunction with other treatments. Actual spacing of drainage sags will be based on Forest Service Handbook direction and location of topographical features.

Treatment #R3a – Construct/Improve Armored Drainage Dip: Construct outsloped drain dips with armoring to improve ditch relief and the ability of roads to better handle anticipated increases in surface runoff including debris and help prevent bulking of debris flows. May be used in conjunction with other treatments. Actual spacing of drainage dips will be based on Forest Service Handbook direction and location of topographical features.

Treatment #R5 – Install 24" Culvert: Installation of a 24" culvert in a constructed "sump" or wet area developed when the road was originally constructed. Increased flows due to the Buckhorn Fire upslope of this will result in ponding of water behind the fill, potentially initiating a road fill failure in this area.

Treatment #R11 – Remove roadway fill and haul to waste site: To be used in conjunction with treatment #R15 at the cattle guard. Treatment pays for the excavation and haul of the backfill material out of the drainage basin.

Treatment #R12 – Move cattle guard approximately 100 ft: To be used on the Buckhorn fire along FS Road 4330 to be used in conjunction with treatment #R3a, #R8, and #R11. Cattle guard is currently located at the base of drainage which experienced a high intensity burn. Drainage currently show signs of debris movement under pre-fire conditions and probability of future movement of material in this drainage under post-fire conditions in likely (probability between 50% to 90%)

Treatment #R15 – Storm Patrol: Patrol area during and immediately after storm events to repair, unplug, or aid in drainage of road drainage features within those drainages of moderate to high burn intensity to reduce the risk of catastrophic road drainage failure and high sedimentation yield. High intensity and flashiness of these high bedload systems increases the risk to infrastructure damage.

Protection/Safety Treatments:

Proposed Treatments from Hydrology Report

- **Addition of gates will allow for administrative closure of public access and mitigate safety risks to the public.**
- **Construction of drain dips and relocation of cattleguard away from the channel to facilitate reestablishment of drainage will greatly reduce the risk of mobilizing road prism fill from delivery into Gold Creek (Buckhorn Fire).**
- **Provide formal notification to Okanogan County officials of the increased risk to life and private property downstream, due to flooding below the Goat and Buckhorn Fires**

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

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										
Road Stabilization	each	24,695	1	$24,695	$0		$0		$0	$24,695
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$24,695	$0		$0		$0	$24,695
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										
				---			$0		$0	$0
Insert new items above this line!				---	$26,000		$0		$0	$26,000
Subtotal Evaluation				---	$26,000		$0		$0	$26,000
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				$24,695	$26,000		**$0**		**$0**	**$50,695**
Previously approved										
Total for this request				**$24,695**						

PART VII - APPROVALS

1. Rebecca Aabel Lamm. 10.15.12
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date