



United States
Department of
Agriculture

Forest
Service

Okanogan-Wenatchee
National Forest

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File Code: 2520

Date: October 15, 2012

Kent Connaughton
Regional Forester
Pacific Northwest Regional Office
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This is an initial request for funding of treatments identified in the enclosed Burned Area Emergency Response (BAER) Report (FS 2500-8) for the Wenatchee Complex of the Central WA Fire Incident. It contains our request for \$279,621 in WFSU-SULT funds. This incident occurred in the central portion of the Okanogan-Wenatchee National Forest, within the Wenatchee River, Entiat and Chelan Ranger Districts in Chelan County, Washington. The Wenatchee Complex burned area encompasses approximately 58,239 acres. There are approximately 42,695 acres of National Forest administered land, 1,124 acres of BLM land, 4,956 acres of WA State owned land and 9,548 acres of privately owned land within the Wenatchee 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:

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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



Date of Report: **10/15/2012****BURNED-AREA REPORT**

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST**A. Type of Report**

- ☒ 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)
☐ 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:**

Wenatchee Complex			
District	Fire Name	Watershed (HUC5) Number	Watershed (HUC5) Name
Chelan	First Creek	1702000903	Lower Lake Chelan
Entiat	Navarre	1702001003	Lake Entiat-Columbia River
	Byrd	1702001002	Entiat River
	Klone	1702001002	Entiat River
	Pyramid	1702001002	Entiat River
Wenatchee River	Basalt	1702001103	Chiwawa River
	Maverick	1702001103	Chiwawa River
	Sears Creek	1702001101	White River-Little Wenatchee River
	Cuitin Lake	1702001104	Icicle Creek
	White Pine	1702001104	Icicle Creek
	Mt. Cashmere	1702001104	Icicle Creek
	Poison	1702001106	Mission Creek
	Peavine	1702001106/1702001105	Mission Creek/ Peshastin Creek
	Canyon	1702001107/1702001003	Wenatchee River/Lake Entiat-Columbia River

B. Fire Number: WA-OWF 559

F. Forest: Okanogan-Wenatchee

C. State: Washington

G. Fire Incident Job Code: P6G7OS (0617)

D. County: Chelan

H. Date Fire Started: 9/8/2012

E. Region: RO6

I. Date Fire Contained: 70% Contained as of 10/12/2012

J. Suppression Cost: As of 10/6/2012 - \$31,070,050

K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): UNKNOWN
2. Fireline seeded (miles): UNKNOWN
3. Roads: **Roughly 25-40% of the roads used in fire 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.**

L. Total Acres Burned: 58,239 Total Acres

NFS Acres (42,695) Other Federal (1,124) State (4,956) Private (9,458)

M. Vegetation Types: Both Poison and the Peavine Fires were of the drier Ponderosa pine/pinegrass series with some open dry and moist meadows. Peavine contained subalpine fir parkland vegetation on the ridge tops. The Canyon Fire was located in primarily bitter brush/bunch grass and small pockets of ponderosa pine. The First Creek and Byrd fires are mixed Ponderosa pine/bitterbrush and Douglas fir/ponderosa pine series. The Basalt, Pyramid, Cashmere Mt Fire, and Klone Fire were in a higher elevation, Subalpine Fir/ mixed open ridge top vegetation series and in the lower elevation, Western hemlock/grand fir and Douglas fir series. The Cashmere Mt. Fire located in the wilderness contains several endemic plants to the Wenatchee Mts. All three fires contained whitebark pine/subalpine fir series along with both dry and wet meadows with the exception of the Basalt Fire. In all fires, riparian forests were restricted to the narrow stream corridors and rock outcrops are found throughout the fires and a dominate feature that contained an additional plant and lichen community common to either granites or sandstone formations.

N. 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.

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

P. Miles of Stream Channels by Order or Class: Total of 123 miles of stream

(36.5 miles of Intermittent; 85.8 miles of perennial; 0.6 miles unknown)

Q. Transportation System

Trails: **48.9 miles** Roads: **167 miles (Level 1 (closed) – 23 miles; Level 2 – 43 miles; Level 3 – 7 miles; Level 5 – 10 miles; non-Forest Service – 84 miles)**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): Low (20,583) Moderate (7,652) High (2,728)

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. 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): **2,728 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 (21,972) Moderate (12,961) High (18,763)

D. Erosion Potential: **27 tons/acre**

There is potential for accelerated erosion from the effects of the fire. Modeling shows that 2,800% 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: **530 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):	<u>24</u>
E. Design Storm Magnitude, (inches):	<u>3.4"</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>51 cfs</u>
G. Estimated Reduction in Infiltration, (percent):	<u>40</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>200</u>

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 downstream 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 will be directly affected by the fire intensity and acreage burned within the headwaters and upper portions of the watersheds. Portions of the town of Wenatchee and Leavenworth, along with entire town of Cashmere are also located directly downstream of the various fire perimeters, and these homes, domestic and/or irrigation systems, and agricultural lands will also be directly affected by the fire intensity and debris flow potential as a result of these fires. From a transportation standpoint the area of greatest concern is the probability of damage to US Highway 97 located directly at the outlet of Oklahoma Gulch, which was a site of debris flow under pre-fire conditions.

The Wenatchee 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 (fires reviewed: Bryd and Canyon) 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 (fires reviewed: Basalt, Cashmere, First, Klone, Maverick, Peavine, and Poison). 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 those fires with a HIGH or VERY HIGH risk rating (Klone, Peavine and Poison) will be submitted at this time for potential funding. Those fires with an INTERMEDIATE risk rating (Basalt, Cashmere, and Sears Creek), road treatments will be provided in the appendix and to the local engineers for use if monitoring indicates that interim funding should be requested.

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.

Cultural

A total of 3 cultural resource sites are identified as "potential values at risk" within the fire perimeter. GIS analysis using the BARC severity layer shows that 2 sites occur in low burn severity and 1 site occurs in high burn severity. Following field assessments, it was determined that none of these sites are at risk of damage from post-fire effects, erosion or information loss. No treatments are proposed for this complex.

B. Emergency Treatment Objectives:

HUMAN LIFE/SAFETY and PROPERTY

Roads

Implement actions within the Wenatchee Fire Complex, Okanogan Complex & Table Mountain Fire 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.

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

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

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			

Channel			
Roads/Trails	60	80	
Protection/Safety	80	90	

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

F. Cost of Selected Alternative (Including Loss):

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

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

A Forest Service BAER team 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 Service Team 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
Noxious Weeds/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
Eric Ellis
Ron Walters
David Toften
Von Pope
Pete Lopushinsky
Ray Faini
Tracy Valentine
Justin Yeager
Mike Rickell
Anna Lael

Kittitas County
BLM
Chelan County Commissioner
WADOT
Chelan County PUD
WDFW
WSU extension
City of Leavenworth
NOAA Fisheries
Cascadia Conservation District
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.)

Implementation Cost:

We are requesting money for Implementation team leader and financial person. These two people will oversee all treatments and track expenses for all four complexes, Wenatchee, Table Mountain, Okanogan and Yakima. \$20,000. Based on working 25 days for 2 people

Information/Web manager. We are requesting money to fund a person to maintain information/web site that was created during BAER assessment. This will cover all of Central Washington BAER assessment area and will be interagency in information. \$5000. Based on working approximately 10 days

BAER Coordination: We are requesting funding for ongoing BAER coordination, evaluation and reporting. This position will be responsible for preparing interim 2500-8s next spring. This is partly the result of not being able to field assess portion of the fires since access was not allowed. \$20,000

Land Treatments:

Weeds

Based on an assessment of risk of noxious weed invasion on native plant communities, monitoring of weed populations, followed by herbicide treatments have been recommended. Table Mt. Complex, Wenatchee Complex: Peavine, Poison, Canyon, Byrd and Okanogan Complex: Goat and Buckhorn Fires all contained either burn severity or proximity to noxious weed populations that deemed it necessary to take emergency actions in order to protect these ecosystems.

All treatments will be completed in the spring and fall of 2013. Two herbicide treatments are planned for each fire and the timing will be determined by herbicide effectiveness by species. Yellow star thistle, whitetop, and Canada thistle are most effectively treated with fall herbicide treatments, while knapweed species are most effectively treated in the spring.

Fires included in the proposed treatment include: Buckhorn, Hunter Mountain, Goat, Byrd, Cashmere Mountain, Poison, Canyon, Peavine, and Table Mountain.

Those fires not considered for treatment are: First Creek, Pyramid, Klone Maverick, Leecher, Basalt, Sears, 469, Mule, John, Signal Peak, Upper White, Wild Rose, French Cabin Creek, Gold Hill, and Kettle Creek. These fires were not considered for treatment due to their small size, the lack of accessibility and/or the low probability of invasive species occurring in these sites post

Wenatchee Complex Fires Treatments

Treatment Type-Detection and treatment of weed species

Treatment Objective-Control new weed infestations within the fire perimeter

Treatment Description-Weeds will be controlled by chemical means.

Canyon

Treatment Cost-\$23,000

Byrd

Treatment Cost-\$53,000

Poison Canyon

Treatment Cost-\$14,000

Peavine

Treatment Cost-\$98,000

Cashmere

Treatment Description-Weeds will be controlled by mechanical means. Cashmere Mountain is designated wilderness, current NEPA compliance will not allow the use of chemicals in wilderness

Treatment Cost-\$4000

Total treatment for Wenatchee complex-\$192,000

This money will be requested for weed treatment in an interim request due to continuing resolution, the forest asked for only moneys for this fall work and no Weed treatment is plan for the fall of 2012

Wildlife: Critical Habitat or Suitable Occupied Habitat

Northern Spotted Owl

Northern spotted owl nest sites in the eastern Cascades have high canopy closure (>60%), multiple canopy layers, and occurred in mid-late successional forests composed of grand fir (*Abies grandis*), Douglas-fir (*Pseudotsuga menziesii*), or Western hemlock (*Tsuga heterophylla*) forest associations (Buchanan et al., 1995). Additional information on the natural history of and conservation strategy for the northern spotted owl may be found in the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011). Because spotted owls are dependent on areas with high canopy cover, areas of high or moderate severity/intensity where vegetation was killed or removed, or areas where trees are obviously red and scorched and will not contribute to canopy in the future, no longer function as spotted owl habitat. In contrast, areas of low intensity fire where canopy is intact but the majority of surface vegetation has been consumed may result in a possible degradation of foraging habitat. Removal of surface woody debris has potential to strongly impact northern spotted owl as the habitat for their prey species (small mammals and their food) has been removed (Lehmkuhl et al. 2006). This will likely result in a decrease in available prey. Any additional tree mortality could cause further decreases in canopy cover that could alter the function of the stand for owls.

Although spotted owl habitat may be found across a large portion of the OWNF, we have focused on two important areas, designated critical habitat (proposed for 2012, 77 Federal Register 14062 14165) and occupied activity centers, which are the estimated home range of resident owls calculated as a 1.8

mile radius around the nest site. For this exercise we calculated the area within critical habitat within the fire perimeters and the area within occupied activity centers that overlap fire perimeters (For the Wenatchee Complex we focused on the Peavine fire because that is the area with occupied activity centers. There are 13 northern spotted owl occupied activity centers that burned at various intensities within the fire perimeters. Several of these activity centers overlap. We modified the soil burn severity map to reflect vegetation mortality as this is more reflective of changes to the habitat. In this case "High" = >75% mortality, "Moderate" = 25-75% mortality, "Low" =<25% mortality and "Unburned or Underburned" = a green canopy. The underburned areas may be problematic into the future as the effects of the long-duration underburn are unknown.

There is concern with post-fire effects for the northern spotted owl. Northern spotted owls in the Cle Elum demography study site, which overlaps the Table Mtn complex, have experienced a 60% population decline since 1994, while northern spotted owls across the the pacific northwest range have experienced an average 2.8% decline (Davis et al 2011). Wildfire is the leading cause of spotted owl habitat loss. The Table Mountain and Wenatchee Complexes burned habitat within an area that contains the majority of the remaining spotted owls on the Okanogan Wenatchee NF. Approximately 22,000 acres of spotted owl habitat burned in the Table Mountain and Peavine fires alone. This area is near the eastern edge of the northern spotted owl range and represents a challenging environment for spotted owl success. This area will remain susceptible to fire risk although local units are working to restore habitat and ecological resiliency through implementation of the OOWNF Forest Restoration Strategy (OOWNF 2010). Until such treatments can be applied it would be prudent to protect the remaining habitat, particularly around the nest stands.

Post-fire impacts include further loss of old growth Douglas-fir trees within activity centers from a prolonged Douglas-fir beetle infestation. Douglas-fir beetles are active in the area and can be expected to attack and kill any large Douglas-fir trees that were damaged but not killed by the fire (C. Mehmehl, Forest Entomologist, pers. comm, Oct. 9, 2012). Douglas-fir bark beetles will be attracted to and occupy these dead and dying trees their preferred host. As the beetles fully occupy the dead and dying trees, the beetle will then infect living healthy trees. The loss of additional old growth Douglas-fir trees in activity centers would adversely impact the spotted owl population that currently exists on the Okanogan Wenatchee NF and constitutes an emergency for recovery of the northern spotted owl. Since large Douglas-fir trees, high basal areas, and dense canopies are some of the basic spotted owl habitat components, it would take a minimum of 100 years for the habitat to become suitable again. Application of the anti-aggregation pheromone (MCH) is extremely effective at preventing Douglas-fir beetle attacks (Ross et al. 2006) and will help to avoid the risk of post-fire loss of old growth Douglas-fir trees in spotted owl activity centers.

III. Treatments to mitigate emergency

The best way to protect the remaining live trees in mixed-conifer and large diameter Douglas-fir forests is to treat the area with anti-aggregating pheromone MCH. This pheromone will reduce the likelihood that Douglas-fir beetles will move from dying trees to live trees.

- a. **Treatment objective:** to treat stands within northern spotted owl activity centers with MCH to protect remaining high quality spotted owl nesting, roosting and foraging habitat surrounding the nest site. We have prioritized treatment and propose to treat 130 acres of habitat around 5 of the most current activity centers (total of 650 acres). Treating all of the activity centers would be cost-prohibitive.
- b. **Treatment description:** Aerial application of MCH to 650 acres
- c. **Treatment cost:** \$105/ac. Treatment of 650 acres would cost approximately \$68,250 plus

helicopter time. 260 acres in Wenatchee Complex and 390 acres in Table Mountain fires are proposed for treatment. Funds will be requested in spring in an interim due to continuing resoulution.

The probability of loss is Very Likely and the magnitude of consequence is Major. Therefore, the BAER risk is High.

Fisheries.

Wenatchee Complex

- Poison Canyon
- Peavine Canyon
- Klone

6th Field HUC: East Fork Mission Creek

5th Field: Mission Creek

CHU – UC Steelhead (Threatened)

Description: The East Fork Mission Creek sub-watershed encompasses the entire East Fork from the confluence with Mission Creek to the headwaters. The majority of the East Fork Mission Creek sub-watershed is located within lands managed by the US Forest Service with small portions of private property in the headwaters. Tributaries to the East Fork Mission Creek include; Crow Canyon Creek, Rag Canyon Creek, Pendleton Canyon Creek, Peavine Canyon Creek and King Canyon Creek.

The lower 5.3 miles of the East Fork Mission Creek are easily accessible from Forest Service roads 7100 and 7102. The headwaters are accessible from the 230 spur of FS road 9712. The headwaters of Kings Canyon, an important tributary, are accessible from the Devil's Gulch (1200) trail or from the 280 spur of FS road 9712. East Fork Mission Creek has been heavily impacted by the presence of road 7100, since the valley floor is so narrow that the road occupies most of the floodplain, displacing or channelizing the stream in numerous places and crossing it with 8 culverts, in the lower 4.8 miles. The drainage, including the riparian zone, has been heavily logged. Logging (1991 era) involves floodplain impacts from machinery at least at the junction of roads 7100 and 7102. Proximity to the road facilitates human impacts, and litter is common in the creek.

6th Field HUC: Devils Gulch

5th Field: Mission Creek

Description: The Devils Gulch sub-watershed encompasses Devils Gulch from its confluence with Mission Creek to the headwaters. The majority of this sub-watershed is within lands managed by the US Forest Service, with two small parcels of private property. Management activities in the Devils Gulch sub-watershed include mixed use Forest trails #1220 and #1201 on the crest of Mission Ridge that are popular with mountain bikers and motorcycles. These trails provide the only access into the watershed. Road #7100 provides access to the trailhead at the mouth of Devils Gulch. Previous timber harvest has taken place within the drainage as evidenced by stumps on the side slopes and in the floodplain (USFS 1999).

6th Field HUC: Sand Creek

5th Field: Mission Creek

Description: Sand Creek is a tributary to Mission Creek which flows into the Wenatchee River at the town of Cashmere (RM 9). The Sand Creek sub-watershed encompasses Sand Creek from the confluence with Mission Creek to the headwaters. The Sand Creek sub-watershed consists of a checkerboard of private property and lands managed by the US Forest Service (USFS 1999). Little Camas Creek is the major tributary to Sand Creek. Forest Service road #7104 parallels the stream the

entire length of the reach and is as close as four feet at times (not only occupies the floodplain but occupies the bankfull channel area. Management activities in the watershed include timber harvest and associated roads, All Terrain Vehicle (ATV) and horse trails crisscross the drainage. The remains of an old Civilian Conservation Corps camp exist near the creek at RM 1.0.

6th Field HUC: Brender Creek-Mission Creek

5th Field: Mission Creek

Description: The Brender Creek-Mission Creek sub-watershed encompasses Mission Creek from the mouth to the confluence with the East Fork of Mission Creek and Devils Gulch. Mission Creek enters the mainstem Wenatchee River at the eastern end of the town of Cashmere. The majority of this sub-watershed is in private ownership, with scattered sections of Forest Service lands (USFS 1999). Tributaries to Mission Creek within this sub-watershed include; Yaksum Canyon Creek, Tripp Canyon Creek, Slawson Canyon Creek, Sherman Canyon Creek and Bear Gulch.

Mission Creek has been highly impacted by private development, agriculture and timber harvest and roading. County Road 11 parallels Mission Creek for the length of this sub-watershed. Orchards are found on both sides of the stream and many private residences have been built near the creek (USFS 1991). Electroshocking surveys were conducted in Mission Creek in 1991, with rainbow trout and brook trout the only fish species identified (USFS 1991).

Road treatments proposed in these areas will be a benefit to the fisheries resources. No additional treatments are proposed for fisheries.

Channel Treatments:

We are requesting money to do some channel treatment on the Cashmire Mtn fire (part of Wenatchee complex) As result of 1994 fire in the area, large amount of wood is in the channel. Now with increase flows, as result of current fire, we feel there is a risk of this woody material being transported down the Drainage. Two days saw crew at \$1500/day and two days hand crew to remove material at 500/day. \$4000

Roads and Trail Treatments:

Roads

- **Klone**

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 #R6 – Remove Existing Culverts: Remove existing culvert and associated fill in selected channel or draw locations to reestablish more natural flow pattern and reduce the risk of culvert plugging due to increased sedimentation loading from the upslope fires. To be used in conjunction with Treatment #R2, #R3 or #R8

Treatment #R8 – Reshape to match natural drainage: To be used within the Klone and Peavine Fires. Once culverts are removed under treatment #R7, reshape the excavated fill slopes to match existing stream channel dimensions (bankfull width, sloped back at a 2H:1V ratio) to reestablish more natural flow patterns and reduce the risk of debris bulking in these drainages. These drainages are within critical fisheries habitat and in the case of Mission Creek (Peavine Fire) directly upstream of the town of Cashmere and several agricultural farms and homes directly adjacent to the channel. These drainages have a history of debris movement. Additional long-term management of these systems is needed.

Treatment #R9a – Armor dip and outfall: To be used in conjunction with treatments #R2, #R3a&b, and #R6. Armor used to hardened inlets and outlets, especially on exposed fills to reduce water velocities and disperse water across the fill-slopes. Three inch material was used for costing of this pay item.

Treatment #R9b – Armor dip and outfall: To be used in conjunction with treatments #R2, #R3a&b, and #R6. Armor used to hardened inlets and outlets, especially on exposed fills to reduce water velocities and disperse water across the fill-slopes. Class I or II riprap was used for costing of this pay item.

- **Peavine**

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 #R3b – Construct/Improve Drainage Dip: Construct unarmored outsloped drain dips within the section of FS Road 7100 originally damaged by the 2011 ERFO event and at the Mission Creek crossing downstream along FS Road 7100. Based on the design storm event, probability of these crossings failing in an event is high, with the existing culverts being unable to handle the increase flow and potential debris loading. Designing the dips over these culverts to fail, will confine the storm waters to the crossing and prevent further road damage downgrade of the crossing, preventing additional sediment from entering the stream system. May be used in conjunction with other treatments.

Treatment #R6 – Remove Existing Culverts: Remove existing culvert and associated fill in selected channel or draw locations to reestablish more natural flow pattern and reduce the risk of culvert

plugging due to increased sedimentation loading from the upslope fires. To be used in conjunction with Treatment #R2, #R3 or #R8

Treatment #R7 – Remove Existing Culvert and Headwall: Remove the existing culverts and concrete headwalls within the section of FS Road 7100 originally damaged by the 2011 ERFO event within the Mission Creek drainage. These structures were compromised during the 2011 event under pre-fire conditions. The severity of the burn directly upslope of these crossings and the high sediment delivery potential indicate that these compromised structures could attribute to further debris loading and or bulking causing even more damage downstream and sedimentation into this critical fisheries. To be used in conjunction with Treatment #R8.

Treatment #R8 – Reshape to match natural drainage: To be used within the Klone and Peavine Fires. Once culverts are removed under treatment #R7, reshape the excavated fill slopes to match existing stream channel dimensions (bankfull width, sloped back at a 2H:1V ratio) to reestablish more natural flow patterns and reduce the risk of debris bulking in these drainages. These drainages are within critical fisheries habitat and in the case of Mission Creek (Peavine Fire) directly upstream of the town of Cashmere and several agricultural farms and homes directly adjacent to the channel. These drainages have a history of debris movement. Additional long-term management of these systems is needed.

Treatment #R10 – Rip rap: Treatment to be used along the south 7100 road at MP 2.773. To be used in conjunction with treatments #R2, #R3a&b, and #R6. Armor used to hardened inlets and outlets, especially on exposed fills to reduce water velocities and disperse water across the fill-slopes, and in this case as part of a flow through drainage dip structure. Three foot minus riprap was used for costing of this pay item.

Treatment #R11 – Remove roadway fill and haul to waste site: To be used in conjunction with treatment #R8 within the 2011 ERFO section of road. Treatment pays for the excavation and haul of the backfill material out of the drainage basin, costs include for adverse haul up FS Road 7100 to FS Road 9712.

Treatment #R13 – Reinforce arch pipe footings: To be used within the Mission Creek drainage at the arch pipe located at MP 3.601 along FS road 7100 directly downstream of the 2011 ERFO section of road. To be used in conjunction with treatments #R3b. Footings of existing arch pipe are badly damaged and probability of failure due to debris bulking is likely. Treatment helps prevent further loss of this important main access road and infrastructure.

Treatment #R14a – Fabricate and install gate: Fabricate/purchase and install closure gates and burned area hazard notification signs to inform the public of post-fire conditions and management actions taken to protect the public safety (roads, trails and trailheads). Gates will allow the Forest Service to provide essential access to private lands as a least cost alternative. A gate to be located on the Peavine Fire at the north end of FS Road 7100 (Forest has gates at the south end and along the Peavine road, FS road 7101). Three gates to be installed along roads providing access to the Table Mountain fire, locations to be determined once the access to the fire is allowed.

Treatment #R14b – Relocate gate: Relocate the gate at MP 4.497 along FS Road 7100 currently blocking access to the section of road damaged by the 2011 ERFO event. Gate is to be relocated in conjunction with the culvert removal at MP 4.495. Gate needs to be on the north side of the crossing.

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. Days included for pre-storm assessment of the Table Mountain Fires, due to the inaccessibility of the fire area to the BAER team. Recommend two person teams to complete the assessment.

- **Poison**

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 #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.

Trails

Wenatchee Fire Complex

The BARC map was field verified where possible and a Soil Severity Map was created. However large portions of Upper Mission Creek/Devils Gulch had a high severity ground fire under a green canopy. The BARC map did not pick up these conditions due to the green canopy. Access was possible along the 7101 East Fork Mission Road where the high severity ground fire under a green canopy was observed. It was not possible to access the rest of this drainage, so soil severity was estimated on similar slopes. The BARC map did not cover the Mt Cashmere and Basalt fires so these were observed from the air and ground.

There are approximately 36.7 miles of trail within the fire footprint of the Wenatchee Complex fires. Of those miles 8.2 miles received high intensity burns, 3.5 miles had moderate intensity burn, 9.6 miles had low intensity burn and 15.4 miles had an under burn or no burn.

Two trail bridges and a CXT toilet at the Devils Gulch Trailhead are threatened by future high stream flows.

Portions of the fire areas will remain unsafe to the public due to hazard trees and unsafe trail and road conditions.

Accessibility to Upper Mission Creek/Devils Gulch at this time is not allowed due to hazard tree danger. Therefore an assessment of the remaining trail infrastructure will need to be completed as soon as safe to do so. The priority is to complete an assessment this fall.

On the Wenatchee Complex fires 8.2 miles of trail burned within high soil burned severity of a total of 37 trail miles; therefore, trail stability treatments are purposed for 22% of the total trail mileage that

fell within the system. Cost of fall treatment for trail stabilization is \$15,000. This cost will be for the amount of work that the forest can get done this fall. Additional request will be made in the spring for work not completed this fall. Due to continuing resolution, the forest asked for only moneys for this fall work.

Protection of CXT, cement toilet building. There is a high potential for Mission Creek to flood and receive substantial debris flows causing damage to the CXT. The forest is proposing to sandbag around the CXT to protect the structure. Cost of treatment is \$2000

Closure/Enforcement:

1) Access to most trails and recreational facilities, affected by the fires, is not allowed at this time due to hazard tree danger. Therefore an evaluation will need to be completed prior to making any decision based on treatments. In the interim a closure would be held in place. In the future when trail stabilization work takes place, it may still be necessary to keep some trails closed. Trail stabilization may not bring the trails up to the standard necessary to protect public trail users. Each trail will need to be further evaluated, and signs posted on those trails that will remain closed until funds can be secured to reconstruct the trails. Law enforcement patrols will be needed to ensure public safety. In some places it may be necessary to install gates. Recreation Facilities that cannot be accessed to mitigate hazards will also fall under the closure area and will need gates and signs installed.

2) Treatment Objective

The objective of this treatment is to ensure that public trail and recreation users are not injured by hazard trees, damaged tread or compromised trail structures and developed facilities.

3) Treatment Description

Signs would be purchased and posted in areas accessing trails and recreation facilities that will remain closed. Employees will patrol the closed areas to ensure compliance with the closure.

Cost of this treatment will be \$11,130 for signs and patrol

Protection/Safety Treatments:

Support for Alert station. Putting in time for Forest Service specialist to review potential location and process special use permit. \$5000

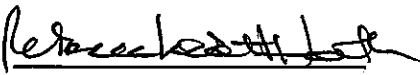
I. Monitoring Narrative:

(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 #

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands			All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units Non Fed \$	
A. Land Treatments									
Implementation Team	each	1	20000	\$20,000	\$0		\$0	\$0	\$20,000
Interagency Liason/web	each	1	5000	\$5,000	\$0		\$0	\$0	\$5,000
BAER support	each	1	20000	\$20,000	\$0		\$0	\$0	\$20,000
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Land Treatments				\$45,000	\$0		\$0	\$0	\$45,000
B. Channel Treatments									
channel clearing	each	1	4000	\$4,000	\$0		\$0	\$0	\$4,000
				\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Channel Treat.				\$4,000	\$0		\$0	\$0	\$4,000
C. Road and Trails									
Road Stabilization	each	20	9824.6	\$196,491	\$0		\$0	\$0	\$196,491
trail stabilization	mile	4	3750	\$15,000	\$0		\$0	\$0	\$15,000
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Road & Trails				\$211,491	\$0		\$0	\$0	\$211,491
D. Protection/Safety									
Field review for Alert system	each	2	3000	\$6,000	\$0		\$0	\$0	\$6,000
closure- signs and patrol	each	1	11130	\$11,130	\$0		\$0	\$0	\$11,130
Protect CXT	each	1	2000	\$2,000	\$0		\$0	\$0	\$2,000
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Structures				\$19,130	\$0		\$0	\$0	\$19,130
E. BAER Evaluation									
				---			\$0	\$0	\$0
<i>Insert new items above this line!</i>				---	\$65,000		\$0	\$0	\$65,000
Subtotal Evaluation				---	\$65,000		\$0	\$0	\$65,000
F. Monitoring									
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0	\$0	\$0
G. Totals				\$279,621	\$65,000		\$0	\$0	\$344,621
Previously approved									
Total for this request				\$279,621					

PART VII - APPROVALS

1. 
Forest Supervisor (signature)

10.15.12
Date

2. _____
Regional Forester (signature)

Date