HATCHERY

United States Department of Agriculture | Forest Service | Wenatchee National Forest | 301 Yakima Street, P.O. Box 811, Wenatchee, WA 98807-0811, (509) 662-4335

Reply To: 2500-8/5150-3 Date: September 21, 1994

Subject: B.E.A. Report--Hatchery Fires

To: Regional Forester, R-6
ATTN: Robert J. Devlin, Timber Management

Attached to this cover letter is a supplemental funding request for the Hatchery fire on the Wenatchee National Forest. The request is summarized on the Burned-Area Report form (FS-2500-8) and part VI needs approval by the Regional Forester.

/s/ sonny j. o'neal

SONNY J. O'NEAL
Forest Supervisor

Enclosure

cc: w/enclosure
B.McCammon:R06C
R.Meurisse:R06C

USDA-FOREST SERVICE Date of Report: 9/21/94

BURNED-AREA REPORT
(Reference FSH 2509.13, Report FS-2500-8)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated EFFS-FW22 funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

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

[X] 2. Interim Report
[X] Updating the initial funding request based on more accurate site data and design analysis. Initial request 8/16/94.

[ ] Status of accomplishments to-date

[ ] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Hatchery B. Fire Number: P68537

C. State: Washington D. County: Chelan
E. Region: R-6 F. Forest: Wenatchee
G. District: Leavenworth

H. Date Fire Started: 7/24/94 I. Date Fire Controlled: Est. 10/31/94
J. Suppression Cost: $10,000,000

K. Fire Suppression Damages Repaired with EFFS-PF12 Funds:
1. Fireline waterbarred (miles) Est. 23 miles
2. Fireline seeded (miles) 23 miles to be completed 9/22/94
3. Other (identify) Spike camps, base camps & safety zones

L. Watershed Number: 17020011 - Wenatchee River

M. NFS Acres Burned: 19,027 * Total Acres Burned: 20,209 *
Ownership type:
( )State ( )BLM (2016)PVT ( )____ _____

* Fire acreage based upon IC-209 Report(9/19/94)

N. Vegetation Types: Low elevations- Ponderosa Pine and Douglas Fir Series
Upper Elevations- Subalpine fir Series
O. Dominant Soils: Shallow coarse textured soils with more than 25% profile rock larger than 2 inches in diameter
P. Geologic Types: Igneous and Metomorphic bedrock (Granodiorite and gniess) Steep rocky hill slopes. River and glacial oversteepened. Swauk sandstone.

Q. Miles of Stream Channels by **Class**:
Cl I - 13 Cl II - 0 Cl III-3 Cl IV-20

R. Transportation System:
Trails: 1 (miles) Roads: 36 (miles)

PART III - WATERSHED CONDITION

A. Fire Intensity (Acres): 13401 (low) 3026 (moderate) 3782 (high)

B. Water Repellant Soil (Acres): 2,000

C. Soil Erosion Hazard Rating (Acres):
3031 (low) 6062 (moderate) 11,116 (high)

D. Erosion Potential: 161 tons/acre
E. Sediment Potential: 80 cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 3 years.
B. Design Chance of Success: 70 percent.
C. Equivalent Design Recurrence Interval: 10 years.
D. Design Storm Duration: 0.5 hours.
E. Design Storm Magnitude: 1.4 inches.
F. Design Flow: 93 cfsm.
G. Estimated Reduction in Infiltration: 20 percent.
H. Adjusted Design Flow: 286 cfsm.

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency: The Hatchery Creek fire area contains many important factors that were considered in determining the proposed course of action:

1. Loss of productivity- The fire area has a history of serious flooding following 1 to 2 years after fires. Area contains highly erodible soils and landforms that effectively deliver sediment.

2. Threat to property and human life --High risk flooding will originate along upper ridges and deposit on private property (alluvial fans in the lowlands). High risk exists for public safety and extensive property damage.

3. Threat to water quality- The burned area encompases a portion of the Wenatchee and Icicle watersheds which provide habitat for spring and summer chinook, sockeye, stealhead, and bull trout.

4. Threat to human life--State Highway 2 dissects the burn area and provides a major transportation link from the east side of Washington State to the Seattle proper. Slope stability in the narrow Tumwater Canyon poses a threat to human life.

B. Emergency Treatment Objectives:

The emergency treatment objective is to provide immediate soil cover and improve infiltration by establishing vegetation through seeding and fertilization. Road and land treatments to reduce erosion and sedimentation onto private property and fish habitat.

C. Probability of Completing Treatment Prior to First Major Damage Producing Storm:

Land 90 % Channel 90 % Roads 90 % Other 90 %

D. Probability of Treatment Success

	<----Years after treatment-----> 1	3	5
Land	80%	85%	90%
Channel	80%	90%	90%
Roads	80%	80%	80%
Other	80%	80%	80%

E. Cost of No-Action (Including Loss): $ 80,134,824

F. Cost of Selected Alternative (Including Loss): $ 17,329,009

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[X] Range
[X] Timber	[X] Wildlife	[X] Fire Mgmt.	[X] Engineering
[X] Contracting	[X] Ecology	[X] Research	[X] Archaeology
[X] PIO_____	[X] Unified Command Structure		

Team Leader: \s\ Carl Davis
Phone: (509) 662-4335 DG Address: C.Davis:R06F17A

H. **Emergency Treatments** Treatments are directed at those flood hazard areas identified in the burned area survey and associated down slope areas. Appendix-3 identifies the changes in treatments from the 8/16/94 request.

1. Land Treatments (See Appendix 1 for summary of seed mixes)

Current Situation: The area has a history of rain on snow storm events that have triggered severe flooding. West of Tumwater Mountain the area is very steep and rocky with old debris-chutes which drain directly into the Wenatchee River. While east of Tumwater Mountain, the area is less steep with few bedrock exposures. The fire has created a landscape mosaic of low to high burn intensity with unburned islands. The Alpine Lakes Wilderness Boundary is within the far western part of the burn.

Purpose: Determine where aerial seeding will be effective. Seed where appropriate to minimize soil erosion by providing vegetative soil surface cover and sub-surface root mass. This should help maintain site productivity and reduce sediment delivery to streams and private property.

Treatment: Aerial seed and fertilize only the area along Tumwater Mountain and to the east.

Treatment: Contour fell trees for sediment control in areas that will have concentrated runoff above private dwellings and roads.

2. Channel Treatments

Existing Condition: Most channels are confined with gradients ranging from 5 to greater than 12 percent. Most streams are perennial so no in channel structures are planned.

3. Road and Trail Treatments

Existing Condition: Most all roads are native surface with few drainage features built into the roads. Most roads are located along mid slope that will receive concentrated runoff.

Purpose: Prevent materials from plugging culverts to reduce the hazard of channel blockage and road washouts into class II and III streams. Construct drainage features into roadways to keep floods from washing out roads.

Treatment: Improve existing culverts and drain dips. Install new culverts and driveable drain dips. Improvement existing ditch and road prism drainage. Some roads will be identified to close and revegetate. As a part of the closure, pull drainage structures to reduce risk of culvert failure and road washout.

4. Other Emergency Actions

Current Situation: An important part of protecting human life is assessing the slope stability hazards in the Tumwater Canyon along State Highway 2 corridor where rock fall and debris slides onto highway 2 has been greatly increased since the fire. Another measure is monitoring rain on snow events which could trigger down stream floods.

Treatment #1: Developing a detailed slope stability assessment in cooperation with the Washington State Highway Department will enable the department to develop road management strategy which could include installation of protective structures or closures during critical periods. Highway department will reimburse the Forest Service.

Treatment #2: Develop an early warning system for flood prediction. The Wenatchee NF. will participate with the National Weather Service and the Chelan County Department of Emergency Services on an early warning system. A network of telemetered rain and stream gages will be installed. Funding, operation, and maintenance will be jointly shared.

Treatment #3: Roads with high risks for flooding will have all culvert structures removed. This will cause steep ravines in excess of 15 feet deep in the road ways. In order to provide public safety, temporary road closures are necessary. When the threat of road washouts lessens, roads will be reopened.

5. B.A.E.R. Evaluation and Administrative Support:

Current Situation: The assessment of the fire effects on the watersheds, identification of values at risk, and development of a emergency treatment strategies required an inter-agency effort.

Team Leaders and Team Members: The BEAR survey team quickly formed into a incident command structure that worked on all fires on the Wenatchee National Forest within Chelan County.

Archaeologist and Biologist Support: To complete the emergency treatments, archaeological assessments and biological evaluations were scheduled. A group of 3 archaeologist and 2 biologist/ecologists completed field and office reviews for a week period.

Administrative Support: Due to the complexity of fires on the Wenatchee NF, the incident command organization included: a logistics section to order resources; a finance/administration section to keep time; an planning section to prepare shift plans and modify prescriptions; a contracting section; and an operations section to implement the emergency treatments.

Part VI introduction: Figures listed in the 2500-8 form are a supplement to the initial 8/16/94 request (see Appendix--3 for explanation). The initial was submitted weeks before the BEAR survey was complete. According to WO advice, supplemental increases will be show in the EFFS-FW22 column as a (+) and decreases with a (-). Unit costs will be the same except for aerial seed/fertS2F which increased from $30.00 to $54.00. Additional treatments have been added.

PART VI - EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LAND OWNERSHIP

NOTE: Emergency rehabilitation is work done promptly following a wildfire and is not to solve watershed problems that existed prior to the wildfire.

			NFS Lands			Other Lands			All
Line Items	Units	Unit Cost $	Number of Units	EFFS-FW22 $	Other $ ident.	Number of Units	Fed SCS/ County ident.	Non Fed Rd. Cost/ Share	Total $
A. LAND TREATMENTS									
1. hand seed/fert	ac	70	10	700					241308
2. aerial seed/fertS2F	ac	54	2000	+ 82260		282	8460		32838
3. aerial seed/fertS3	ac	76	192	- 6992		128	9728		274146
4. aerial fert only F	ac	21	70	+ 1470		0			
5. aerial seed S4	ac	21	1000	+ 21000					
6. log terrace	ac	293	640	+143570		50	14650		
net sub-total change				+241308			32838		~~4175~~
B. CHANNEL TREATMENTS									
1. large check dams	str	5000	0			6	30000		
2. small check dams	str	500	0			30	15000		
net sub-total change							45000		
C. ROADS AND TRAILS									
1. culvert grade sags	str	3200	8	25600		8		25600	
2. driveable dip/armor	str	2000	24	48000		24		48000	
3. erosion dip/armor	str	500	75	37500		75		37500	
4. culvert/dip improv.	str	450	35	15750		35		15750	
5. culvert replacement	str								
large		12000	0			0			
small		5000	1	5000		1		5000	
6. ditch & prism drain	mi	800	11	8800		11		8800	
7. road rehab/veg	ac	900	12	+ 10800		0			
net sub-total change				+ 10800				140650	
D. OTHER EMERGENCY ACTIONS									
1. slope stability	each	50000	1			1	50000		
2. early warning syst	each	8000	1	+ 8000		1	8000		
3. temp road closure	str	500	5	+ 2500					
net sub-total change				+ 10500					
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT									
1. BAER SURVEY AND FIRE REHAB PLAN				8000					
2. IMPLEMENTATION OF REHAB ADMIN SUPPORT				+ 13000					
F. TOTALS				+283608			135838	140650	

PART VII - APPROVALS

1. /s/ SONNY J. O'NEAL — 09/22/94
Forest Supervisor (Signature) — Date

2. /s/ _____
Regional Forester (Signature) — Date

APPENDIX--1

HATCHERY CREEK FIRE SEEDING RECOMMENDATION

Seeding Rational: Will require certified seed with no noxious weeds. Rely on sterile annual grasses or grains as a nurse crop. Expect this nurse crop to be gone in 1-2 years. Short lived perennials will provide added soil protection for 1-2 years after the annuals disappear. During this time native perennials should start filling in. **Objective of the seed mix: provide immediate cover but no long lasting carry over.**

--CHANNEL MIX (S3)--

SPECIES	PLS LBS/AC	PLS SEEDS/ SQ.FT.	SEEDS/LB
soft white winter wheat (Madsen)	50	15	12,000
Slender wheatgr. (Pryor)	12	42	150,000
Yellow sweetclover	2	12	262,000

Fertilize with Ammonium Nitrate Sulfate (ANS=30% N) to get 20 lbs of N/ac.

--FOREST MIX (S2F)--

SPECIES	PLS LBS/AC	PLS SEEDS/ SQ. FT.	SEEDS/L
soft white winter wheat (Madsen)	50	15	12,000
Slender wheatgr. (Pryor)	6	42	150,000
Red clover	1	6.5	282,000

Fertilize with Ammonium Nitrate Sulfate (ANS=30% N) to get 20 lbs of N/ac.

--Winter Wheat Mix S4--

APPENDIX--2

Hatchery Creek Fire

LANDSCAPE SETTING:

1. The upper forested watersheds are steep with alluvial fans on lower slopes. Flooding upon these alluvial fans is a natural process. The upper watersheds are administered primarily by the Forest Service, Bureau of Land Management, and the Washington Department of Natural Resources.

2. Alluvial fans are in private ownership. Approximately two to five homes are located on each alluvial fan.

3. The watersheds are in the rain shadow of the Cascades. Within a span of less than 20 miles precipitation ranges from 20-140 inches.

4. Fire is well with in the area subject to rain on snow events. This poses serious flooding situations.

SUMMARY:

The emergency rehabilitation effort needs to be a comprehensive package that includes the entire watershed. The land treatment, channel treatments, and road drainage improvements are all necessary. If any one treatment is not implemented, life and private property is at high risk.

APPENDIX--3

Listed below is a summary of the changes from the 8/16/94 initial funding request. The initial request was submitted while the B.E.A.R surveys were only 50 percent complete.

A. LAND TREATMENTS
   1. hand seed/fert--no change
   2. aerial seed/fert S2F--acreage of treatment increased by 1,142 acres.
   3. aerial seed S3--acreage of treatment reduced by 92 acres.
   4. aerial fert only F--acreage increased by 70 acres.
   5. aerial seed S4--acreage increased by 1,000 acres.
   6. log terrace--increased by 490 acres.

B. CHANNEL TREATMENT
   1. Large check dams--no structures
   2. small check dams--no structures

C. ROADS AND TRAILS
   1. culvert grade sags--no change
   2. driveable dip/armour--no change
   3. erosion dip/armour--no change
   4. culvert/dip improv--no change
   5. culvert replacement
      large--no change
      small--no change
   6. ditch & prism drainage--no change
   7. road rehab/reveg--increased by 12 acres

D. OTHER EMERGENCY ACTIONS
   1. slope stability--reimbursed by Washington Dept. of Transportation.

   2. early warning system--increase to cooperate with Chelan County Emergency Services, WA. Department of Ecology, and National Weather Service to install a early warning system for flood hazards.

   3. Temporary road closures--increase to temporary closure roads where drainage structures (culverts) have been removed to prevent road washouts.

E. BEAR EVALUATION/ADMINISTRATIVE SUPPORT

   1. BEAR survey and fire rehab plan--no change

   2. Implementation of rehab admin. Support--increase to reimburse actual and projected administration support.