USDA-FOREST SERVICE FS-2500-8 (7/00)

Date of Report: 01/24/2002

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated WFSU-SULT funds
[X] 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 or design analysis
[X] Status of accomplishments to date

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Mt. Leona Complex

B. Fire Number: WA-COF-083

C. State: WA

D. County: Ferry

E. Region: 06

F. Forest: Colville

G. District: Republic

H. Date Fire Started: 08/13/2001

I. Date Fire Controlled: Fire contained 09/02/2001
Estimated control date 10/01/2001

J. Suppression Cost: $12,680,000 (as of 09/05/2001)

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 36.3
2. Fireline seeded (miles): 36.3
3. Other (identify): Fence replacement, culvert cleaning, removal of culverts put in for emergency use.

L. Watershed Number: 1702000272D01

M. Total Acres Burned: 6144
NFS Acres(5911) Other Federal ( ) State () Private (233)

N. Vegetation Types: Douglas-fir, Ponderosa Pine, sub-alpine fir/lodgepole (fuel model 2, 8, 9, 10)

O. Dominant Soils: Growden fine sandy loam, 35-65% slopes
Togo loam 35-65% slopes
Scar sandy loam, 0-15% slopes

P. Geologic Types: steeply fractured marbles in southern half of the fire, and finely fractured quartzite in the northern half

Q. Miles of Stream Channels by Order or Class: Class II – 1.77 miles
Class III – 3.00 miles
Class IV – 13.25 miles

R. Transportation System

Trails: 5 miles Roads: 19 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 4887 (low) 750 (moderate) ___ (high)
507 acs disputed (either Mod or High) - see discussion below

B. Water-Repellent Soil (acres): 507 acres.

C. Soil Erosion Hazard Rating (acres):
1026 (low) 958 (moderate) 4160 (high)

D. Erosion Potential: 5.37 tons/acre

E. Sediment Potential: 1080 cubic yards / square mile

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): 100

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 1.8

F. Design Flow, (cubic feet / second/ square mile): 12.6

G. Estimated Reduction in Infiltration, (percent): 10

H. Adjusted Design Flow, (cfs per square mile): 13.8

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency: Fire intensities resulted in approximately 80% light to moderate burns, and 20% moderate to severe burns. The moderate to severe burns occurred in several large zones, and there was considerable discussion within the BAER team regarding the classification of fire intensity within some of these zones. As shown above, some of the acreage classified as moderate fire intensity was considered to be high fire intensity by some team members. It was agreed that portions of all zones mapped as moderate fire intensity contained significant amounts of high fire intensity patches, however the specific amount of high fire

intensity (above or below 40% of the area in accordance with FSH 2509.13 - 23.32) was not completely resolved. Specific wildfire damages identified by the BAER team include: increased potential for existing noxious weed populations to expand; potential soil movement and erosion impacting roads and trails; and damage to a radio repeater site necessary for communication between the Republic Ranger District and Forest Headquarters, increased risk to user safety on roads and trails. Other than the repeater site, there was no fire damage to campgrounds, signing, or Forest Service maintained structures.

B. Emergency Treatment Objectives: To prevent imparement of ecosystem structure and function by preventing the spread of diffuse knapweed following wildfire; to control water, sediment, and debris movement in a manner that protects investments in roads and trails; and to provide for employee and public safety.

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

Land **90** % Channel ___ % Roads **90** % Other **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	95%	99%	99%
Channel	N/A	N/A	N/A
Roads	99%	99%	99%
Other	99%	99%	99%

E. Cost of No-Action (Including Loss): $270,280 (includes BAER Survey Team costs)

F. Cost of Selected Alternative (Including Loss): $71,026 (includes BAER Survey Team costs)

G. Skills Represented on Burned-Area Survey Team:

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

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H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

Riparian Seeding - An un-named tributary to the North Fork, St. Peters Creek located in T38N, R34E, Sections 11 and 14 was one of the more intensively burned sites within the fire. To help re-establish root structure to stabilize riparian soils, maintain site productivity, and prevent erosion within the normal high water line, this area will be seeded with winter wheat (12 pounds/acre). Approximately 10 acres will be seeded.

Estimated Seed cost	= $330
Application cost (3 person hand crew plus vehicle & supervision)	= $450
Total Project Cost	= $780 ($78/acre)

Project Status as of January 2002 -Work is completed.

Noxious Weed Prevention - approximately 250 acres of diffuse knapweed were located within the fire perimeter prior to the fire. Most (about 200 acres) was located within a contigious block in the southwest portion of the fire, with the remainder (50 acres) located in scattered patches along the existing road system. The wildfire created suitable conditions for this noxious weed to expand. An increase of approximately 75 acres per year is anticipated. To prevent noxious weed establishment, two treatments are proposed: Spot herbicide treatment of 75 acres of knapweed per year for the next three years; and 200 acres of seeding to prevent or minimize re-establishment of diffuse knapweed within the 200 acre block. Natural recovery in this area is not expected to provide sufficient ground cover to prevent complete dominance of this area by knapweed. Estimated costs for these projects are displayed below. Required NEPA for herbicide treatment is completed. All herbicide treatments within this area will be conducted in accordance with the Environmental Assessment for Integrated Noxous Weed Treatment - Colville National Forest, September, 1998.

Herbicide treatments of new infestations:

75 acres/year x $100 per acre(herbicide plus application cost) = $7500

Total Project Cost ($7500 x 3 years of treatment) = $22,250

Project Status as of January 2002 - No work on this project completed. Work was designed to treat new infestations and scheduled to be done in 2002-2004. FY2002 funding ($7500) is requested at this time.

Seeding to prevent noxious weed re-establishment:

Seed (Covar sheep fescue at 4 lbs/acre @ $2.25/lb)	= $1800
Application cost (four-wheeler with seeder @ 10 acres per day, vehicle cost & supervision)	= $2300
Total Project Cost ($20.50/acre)	= $4100

Estimated cost to control and/or eliminate weed populations within fire perimeter after 3-5 years, if allowed to expand (no treatment alternative) is $47,500.

Project Status as of January 2002 -Work is completed.

Channel Treatments: Monitoring only prescribed at this time - see below..

Roads and Trail Treatments:

Install Temporary Trail Warning Signs - Three warning signs are needed at entry points for the Big Lick Trail along the N. Fork, St. Peters Creek. Burned conditions above and along this trail have created situations where there is an increased risk of flash flood and/or debris deposition during rainfall events.

In addition, there is an increased risk of falling snags within this area. Although four flood prone sites have been identified, the degree of risk to channel stability, downstream values, or user safety does not warrant any BAER related land or channel treatments at this time. The level of trail use does not warrant the expense of snag removal. For these reasons, warning signs are considered the preferred treatment to address the increased risk to the safety of trail users.

Cost of sign development and installation = $350

Project Status as of January 2002 -Work is completed.

Erosion control along Profanity Peak Trail - The area around approximately 0.25 miles of this trail were subjected to a high intensity burn, and runoff is expected that will impact the trail and affect user safety. Three treatments are planned to address the situation and prevent further damage: additional erosion control structures (waterbars): log contouring above the trail: and temporary safety signing to warn users about the potential for falling snags.

Trail waterbarring (1 per 100 feet = 13 structures @ $24 each) = $312
Log contouring (20 acres x 18 logs/acre) = $5625
Safety signing = $150
(1 at junction of Rd #2160000 and Trail #32, 1 at junction Trail #13 and #32)

Total Project Cost = $6,087

Estimated cost to repair/relocate trail if necessary due to no treatment = $10,000

Project Status as of January 2002 -Work is completed.

Control Increased Runoff along Roads - To handle the increased runoff expected as a result of the fire (based on 100 year flood calculations), four road treatments are planned: construction of new drain dips along 1.6 miles of Road 2157000; reshaping existing drain dips on 1.8 miles of Road 2157300; constructing new drain dips along 2.0 miles of Road 2160800; and reshaping the road template, cleaning and flushing culverts, and reshaping existing drain dips along 7.7 miles of Road 2160000.

Treatment costs for Road 2157000 = $950
Treatment costs for Road 2157300 = $360
Treatment costs for Road 2160800 = $1000
Treatment costs for Road 2160000 = $7700
Total Project Cost = $10,010

Estimated cost to repair roads if failure occurs due to inadequate drainage = $150,000

Project Status as of January 2002 -Work is completed.

Repair Damaged Roadbed - The roadbed of Road 2160400 was damaged by the fire. Debris buried in the roadfill when it was constructed was burned out, leaving the road impassable. The fillslope was still hot and smoking on 09/05/2001, indicating that additional debris may still be burning. To make the road safely passable, additional fill material is needed.

Excavator w/ operator = $630
10 cy dumptruck w/ operator = $370
Equipment mobilization = $900
Total Project Cost = $1900

Project Status as of January 2002 -Work is completed.

Structures:

Mt. Leona Repeater Site Repair and Protection - The fire burned over the peak of Mt. Leona, damaging the repeater site located there. During the fire, it was temporarily out of commission, disrupting communications between the Republic Ranger District (and fire command) with the Supervisor's Office (and fire dispatch). This site is an essential link in the Forest radio network, necessary for full and effective radio coverage to and from the northwest portion of the Colville Forest. The safety of employees (including BAER implementation teams) working on the Republic District is tied to having the capability to effectively communicate during emergencies. Post-fire surveys indicate the need to remove snags that could fall onto the repeater site to prevent structural damage, and to replace solar panels and cables that were exposed and damaged (insulation burned off) between the antenna and repeater building.

Snag Removal (remove snags with the potential to strike repeater facilities) = $500
Antenna Cable and Solar Panel Replacement = $6019
(Solar Panels = $3324)
(Cables = $1923)
(Labor = $772)

Replacement cost of repeater facilities if damaged by falling snags = $50,000

Project Status as of January 2002 -Work is completed.

H. **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.)

Monitoring will be conducted to assess the following:

- Effectiveness of noxious weed treatments
- Effectiveness of riparian seeding
- Stream channel condition and stability, especially after significant rainfall events
- Vegetative recovery with respect to the area's ability to withstand livestock grazing
- Effectiveness of road and trail treatments
- General vegetative recovery for use in future BAER assessments

Annual monitoring costs (10 person days per year x 3 years) = $6000

Project Status as of January 2002 - Funding for monitoring was not approved in September 2001 because a detailed monitoring plan was not submitted with the initial funding request. The monitoring plan has now been completed and is attached. Additional funding for FY2002 monitoring ($2000) is requested at this time.

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

			NFS Lands				Other Lands				All
		Unit	# of	WFSU	Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	SULT $	$	units	$	Units	$	$
A. Land Treatments										
Riparian Seeding	acres	78	10	$780			$0		$0	$780
Herbicide	acres	100	225	$22,500			$0		$0	$22,500
Seeding	acres	20.5	200	$4,100			$0		$0	$4,100
				$0			$0		$0	$0
Subtotal Land Treatments				$27,380			$0		$0	$26,600
B. Channel Treatments										
N/A				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Channel Treat.				$0			$0		$0	$0
C. Road and Trails										
Big Lick Trail Signs				$350			$0		$0	$350
Profanity Peak Trail				$6,087			$0		$0	$6,087
Control Runoff				$10,010			$0		$0	$10,010
Repair Roadbed				$1,900			$0		$0	$1,900
Subtotal Road & Trails				$18,347			$0		$0	$18,347
D. Structures										
Repeater Protection				$500			$0		$0	$500
Repeater Repair				$6,019			$0		$0	$6,019
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Structures				$6,519			$0		$0	$6,519
E. BAER Evaluation										
Survey Team Costs				$12,780			$0		$0	$12,780
				$0			$0		$0	$0
G. Monitoring Cost				$6,000			$0		$0	$6,000
H. Totals				**$71,026**			**$0**		**$0**	**$64,246**

PART VII - APPROVALS

1. /s/ Donald N. Gonzalez (EP& M Staff Officer) 01/24/2002
(for) Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date

MONITORING PLAN
MT. LEONA FIRE BAER PROJECTS

MONITORING OBJECTIVES - Monitoring will be conducted to:

1. **Determine effectiveness of noxious weed treatments and assess re-treatment needs, if any:**

   Seeding treatment - To detect if there is an increase in size and/or density of the infestation of diffuse knapweed within the seeded area. Establish 4 photo points (with reader boards to document height of vegetation) and run a 100 foot transect in each cardinal direction from each photo point center. Take photo down transect line. Read vegetation located at 3 foot increments along the transect - document species of plant (or bare ground, litter, etc.) Estimated annual cost = $250.

   Herbicide spraying of scattered populations - document each population size and location on Washington Pesticide Application Record - AGR 4226 (Rev 4/99). Maintain records as required and compare each year's treatment needs to those of the previous year. Document differences in size of area and/or number of weeds treated. Annual monitoring cost included as part of treatment costs.

2. **Determine effectiveness of riparian seeding:**

   Establish 2 photo points, one near each end of the seeded area. Establish one 100 foot linear transect through seeded area from each photo point. Annually re-take photos and read transect (document vegetation/bare ground/litter at 3 foot increments). Assess and document annual changes. Estimated annual cost = $250.

3. **Assess stream channel condition and stability**

   Visual assessment and documentation of stream channel condition, especially following significant rainfall events. Emphasis will be placed on monitoring conditions along the un-named tributary to N. Fork St. Peters Creek where riparian seeding was conducted and along the Big Lick Trail where adjacent to N. Fork St. Peters Creek where 4 flood prone sites have been identified. Refer to the FS-2500-8 submitted 09/07/2001 for additional information. Estimated annual cost = $500.

4. **Assess vegetative recovery with respect to livestock grazing:**

   While reading riparian transects described above, test root firmness of forage plant species. When plants are well established, and not uprooted easily, the area should be ready for grazing. Randomly select 20-50 other locations within the burned area to test root firmness of naturally re-established vegetation. Document results in Allotment folder. Cost covered in other monitoring.

5. **Determine effectiveness of road and trail treatments**

   Annual visual inspection of road surface conditions by Forest Engineering group. Document results as part of road maintenance records. Estimated annual cost = $250.

   Visual inspections of trail conditions, with emphasis on the Profanity Peak Trail and the erosion control work done in that area, by District Recreation personnel. Document results and maintain in trail records. Estimated annual cost = $250.

6. **Assess general vegetative recovery for use in future BAER assessments:**

   Establish 6-10 photo points within the main fire area. Document photo point locations with GPS or other methods. Retake photos annually and assess and document relative changes in vegetative condition. Estimated annual cost = $500.

DOCUMENTATION AND RECORD KEEPING - Maintain copies of monitoring results in appropriate program files (range, noxious weeds, trails, etc.) as well as within BAER files.