

Date of Report:

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 DESCRIPTIONA. Fire Name: Twin Lakes Complex-Clear Creek FireB. OR-WWF-00731C. State: OregonD. County : BakerE. Region: 6F. Forest: Wallowa-WhitmanG. District: Pine/Eagle Cap/Hells Canyon NRAH. P6C5YZI. Date Fire Started: September 4, 2006J. Date Fire Contained: 9/20/2006K. Suppression Cost: 3.2 million

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 8.5
2. Fireline seeded (miles): 1
3. Other (identify): 4 culvert inlets cleaned

M. Watershed Number: 17050201

N. Total Acres Burned: _____

 NFS Acres () 12,690 Other Federal () State () Private ()O. Vegetation Types: Forested with sub-alpine fir, spruce, mixed conifer-60%, grassland-40% and wet and dry meadows.P. Dominant Soils: Relatively shallow soils with a surface layer of volcanic ash over coarser textured sub-soils. Glacial deposits have deep coarse textured rocky soils on alluvial fans and moraine deposits.

Q. Geologic Types: Metamorphic rocks with a complex composition compose the lower slopes over much of the fire area, with layered basalts comprising higher elevation areas. Landforms are high ridges and moderately incised inner gorges through glacial deposits, alluvial fans at the bottom of ridges, and relatively gentle high elevation hills and valleys and plateaus. The east side of the Clear Creek fire is broad glaciated valleys with frequent rock outcrops.

R. Miles of Stream Channels by Order or Class: I- 3 miles ; II- 4 miles; III- 2; IV- 3

S. Transportation System

Trails: 18 miles Roads: 4.2 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 10259 (low or un-burned) 1569 (moderate) 241 (high)

B. Water-Repellent Soil (acres): 1810 Volcanic ash in area has non-wettable characteristics

C. Soil Erosion Hazard Rating (acres):
 (low) 1810 (moderate) (high)

Notes on Erosion Hazard- The fire burned through gentle terrain with slopes mostly in the 0-30% range, with some steeper inner gorge areas exceeding 40% slopes. The vegetation consists of stringers of timber on the north side of ridges or in swales separated by open grasslands. The fire burned in a pronounced mosaic of intensities over much of the burned areas. The fire itself was limited almost exclusively to forested areas, and adjacent grassland often did not burn. The forested areas had generally high fuel loading. Hydrophobic soils were common in the moderately to high severity burned areas. However, due primarily to the relatively gentle terrain in most of the burned areas, and un-burned meadow or forested vegetation adjacent to burned areas, inherent erosion hazard in moderate severity burned forested areas is considered moderate rather than high. There was little evidence of recent or historic debris flows or other mass wasting in the fire perimeter. Sediment delivery to streams will be moderated by the mosaic of fire severity, and by un-burned areas adjacent to moderately burned areas.

D. Erosion Potential: 26 tons/acre (moderately to high severity areas only. Since 15% of the fire area burned moderate to high intensity, 3.9 tons/acre of erosion is the maximum amount anticipated after the fire from the overall watersheds in the next 24 month period without treatment. There probably will be less, depending on the rainfall. Unburned and low severity areas will reduce likelihood of sediment reaching streams even further)

E. Sediment Potential: 1538 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

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

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

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): .5*

E. Design Storm Magnitude, (inches): .5

- F. Design Flow, (cubic feet / second/ square mile): 2-5 csm
- G. Estimated Reduction in Infiltration, (percent): 20-40% **
- H. Adjusted Design Flow, (cfs per square mile): 8 csm

Note: 1) The design storm for this area that would cause significant erosion would typically be a short duration high intensity summer convective rainfall event. Spring snowmelt is not likely to cause significant erosion except on un-maintained or damaged trails or roads within the fire area.

2)** Hydrophobic soils will decrease infiltration by 20-40% in moderately to severe burned areas only. Ash soils in this area are naturally hydrophobic in un-burned areas.

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Twin Lakes complex consists of the Clear Creek (11,634 ac) and Twin Lakes (435 ac) fires. No BAER actions are anticipated for the Twin Lakes fire. The following are emergency actions necessary for the Clear Creek fire.

Water Quality and Fisheries- The fires burned through high elevation ridges and valleys with over 40 inches of precipitation annually, mostly occurring as snow. In the burned areas slopes are generally less than 30%. Several streams drain the fires, including Clear Creek and East Fork Pine Creek and their tributaries. Bull Trout are present in both of these drainages. From post-fire surveys it was determined that a low risk existed for sedimentation from the burned areas due to relatively low gradient terrain, and well-vegetated buffer strips of un-burned or lightly burned areas limiting sediment delivery to channels. In general on the west side of the Clear Creek fire the higher severity burn effects to soils such as consumption of organic litter and high water repellency are limited in extent to 10-20 acre patches, and are often surrounded by un-burned vegetation that limits the risk to downstream resources, including 303(d) listed streams and fisheries. On the east side of the fire, a contiguous patch of moderate severity burn between Melrose Reservoir and Fish Lake is approximately 500 acres in extent, however is located on gentle slopes and surrounded by lightly burned areas.

Generally any increase in sediment yield from burned hillslopes as a result of the fire are likely to be low, and within the expected natural range of variability. The biggest threat to water quality is sediment derived from road and trail systems within the Clear Creek fire perimeter, despite much of the area being roadless. Trails and roads commonly parallel or cross streams. In many places along the East Fork Pine Creek (1865) and Melhorn Reservoir trails (1867), wooden water bars were completely or partially consumed by fire and were not functioning properly. BAER surveys found that a recent post-fire rain caused little erosion from hill slopes, but runoff from trail systems led to the formation of rills where runoff was directed to burned hill slopes. An emergency situation exists where trail runoff will be directed onto burned areas, especially for trails near streams and lakes. Roads in the fire perimeter may contribute to increased sedimentation. Road 1896 has a small stream-crossing culvert that is undersized to accommodate additional runoff and debris expected after the fire. This culvert is located on a tributary to a section of East Fork Pine Creek occupied by bull trout.

Several small water reservoirs exist within the Clear Creek fire. It is anticipated that reduction of the forest canopy along streams draining into these reservoirs will result in increased in-stream nutrients. As vegetation is established in these watersheds, nutrient amount will decrease. This is a natural process caused by wildfires. Rapid development of vegetation in the burned area is critical for the re-establishment of pre-disturbance nutrient cycles.

Livestock Management- The Clear Creek fire burned in the West and East Pine Allotment. Livestock grazing in the fire area may retard the recovery of vegetation and increase the risk of erosion from hillslopes in areas that have burned. The post-fire recovery strategy is to eliminate grazing for a time following the fire to allow for hillslope and riparian vegetation to recover after the fire, and re-build allotment fences burned by the fire to keep cattle from adjacent allotments out of the fire area.

Noxious/Invasive Weeds-

The Clear creek fire of the Twin Lakes Complex burned over an area (5 to 10 acres) of a known noxious weed called Yellow Toadflax, or Butter and Eggs (*Linaria vulgaris*). We need to identify the extent of the site's spread from the fire and then apply an appropriate chemical or biological treatment (through a supplemental request for treatment funding).

Threats to Human Life and Safety-

Values at risk downstream several miles include houses, reservoirs, bridges, water intakes, and roads. For reasons discussed in previous sections flooding and erosion from drainages in the Clear Creek or Twin Lakes fire area is not expected to increase substantially within a year or two after the fire based on post-fire surveys. There is a slight chance that debris flows or other mass wasting will occur after the fire. Debris flows will affect East Fork Pine Creek by adding sediment, ash, and debris to the channel, but effects are anticipated to be minimized due to the intact nature of the channel within and outside the fire perimeter, which will act to retain sediment and debris during a debris flow. East Fork flows into Pine Creek, and buildings and other human habitation occur adjacent to Pine Creek several miles downstream. It is not anticipated that a debris flow originating in East Fork will substantially alter Pine Creek and cause flooding affects that will cause a risk to downstream buildings, bridges, water intakes, and other property.

Trails in the fire area in several locations are poorly drained as a result of the burning of wooden water bars. In order to re-build these waterbars, crews will be required to fall hazard tree snags from along trails. In other areas, closures will be considered to reduce the threat posed by hazard tree snags. The trailhead at Dead Man trailhead has the potential to cause significant erosion on adjacent burned areas.

B. Emergency Treatment Objectives:

The application of the BAER treatments accelerates natural recovery and minimizes on-site damage to values at risk.

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

Land 90 % Channel NA % Roads/Trails 80 % Protection/Safety 90 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	75	75
Channel	NA	NA	NA
Roads/Trails	80	80	80
Protection/Safety	90	95	95

E. Cost of No-Action (Including Loss): **\$300,000**

F. Cost of Selected Alternative (Including Loss): **\$200, 000**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Michael McNamara

Email: mmcnamara@fs.fed.us

Phone: 541.523.1382 FAX: 541.523.1315

H. Treatment Narrative:

Overall goal of BAER treatments- To complete a combination of treatments to reduce erosion risk from trails, reduce the risk of culvert failure on road networks, and manage livestock for post-fire recovery.

Land Treatments:

Purpose- Livestock use in the fire area will be managed to exclude cattle for two years after the fire to accelerate vegetation recovery in burned areas. This will be done consistent with grazing regulations.

Treatment L1- Exclude Livestock: To achieve this goal, re-construction of 3 miles of allotment fence is necessary for the Clear Creek fire to effectively manage cattle and keep them from coming into the fire area from adjacent allotments.

Treatment L2- Noxious Weeds Monitoring- Yellow Toadflax, or Butter and Eggs (*Linaria vulgaris*) is at risk of increasing its extent as a result of the fire. We need to monitor the extent of the site's spread from the fire and then apply an appropriate chemical or biological treatment (through a supplemental request for treatment funding)

Channel Treatments:

None prescribed.

Roads and Trail Treatments:

Purpose- To reduce the risk of erosion from trails and culvert failures from roads. Several miles of trails within the fire perimeter are in need of improved drainage due to destruction of waterbars by fire.

Treatment RT1-Trail Drainage: Crews will re-build drainage features on several miles of trails within the fire perimeter in more severely burned areas. These will consist of wooden or rock waterbars.

Treatment RT2-Dead Man Trailhead Erosion Control: Crews will waterbar trailhead to reduce erosion in a burned area

Treatment RT3-Culvert Replacement: The culvert on the 1896 closed road/trail will be replaced to accommodate debris from the fire

Protection/Safety Treatments:

Purpose- To remove trees that pose a risk to BAER implementation personnel implementing trail treatments.

Treatment S1-Hazard Trees Hazard tree snags created by the fire will be removed

Treatment S2-Hazard Warning Signs: Install hazard signs to raise awareness for people using trails

I. Monitoring Narrative:

Implementation monitoring will be completed on all BAER treatments. Specifics of monitoring will be outlined in the final BAER report. Preliminary cost estimates are given in part IV. Implementation monitoring will be completed as treatments occur, and costs will be included as part of treatment costs.

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										
Allotment Fences miles	miles	8000	3	\$24,000	\$0		\$0		\$0	\$24,000
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$24,000	\$0		\$0		\$0	\$24,000
B. Channel Treatments										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treat.				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
Trail Waterbars Reconst.	miles	1510	7	\$10,570	\$0		\$0		\$0	\$10,570
Culvert Replace	each	8650	1	\$8,650	\$0		\$0		\$0	\$8,650
Trailhead Erosion Control	each	2000		\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$19,220	\$0		\$0		\$0	\$19,220
D. Protection/Safety										
Hazrd Tree Removal	mile	300	7	\$2,100	\$0		\$0		\$0	\$2,100
Snag Hazard Signs		25	10	\$250	\$0		\$0		\$0	\$250
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$2,350	\$0		\$0		\$0	\$2,350
E. BAER Evaluation										
Assessment				\$4,437			\$0		\$0	\$0
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				---	\$0		\$0		\$0	\$0
F. Monitoring										
Noxious Weed Monitoring	acres	450	10	\$4,500	\$0		\$0		\$0	\$4,500
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$4,500	\$0		\$0		\$0	\$4,500
G. Totals				\$50,070	\$0		\$0		\$0	\$50,070
Previously approved										
Total for this request				\$50,070						

PART VII - APPROVALS

STEVE ELLIS
Forest Supervisor (signature)

Date

LINDA GOODMAN
Regional Forester (signature)

Date