

Date of Report:

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 1. Funding request for estimated WFSU-SULT 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)
☐ 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: Grease FireB. Fire Number: CA-PNF-551C. State: CaliforniaD. County: PlumasE. Region: 05F. Forest: PlumasG. District: BeckwourthH. Fire Incident Job Code: P5CY34I. Date Fire Started: July 16, 2006J. Date Fire Controlled: Confirmed July 23, 2006K. Suppression Cost: 1,373,134

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): Total-3.1 miles
2. Fireline seeded (miles):
3. Other (identify):

M. Watershed Number: 180201220202 and 180201220206

N. Total Acres Burned: 366

NFS Acres (366) Other Federal () State () Private ()

O. Vegetation Types: East side pine type (Jeffery) with white fir, manzanita, sierra juniper, mountain mohogany, deer brush, bitter brush, service berry, mountain snowberry, squaw carpet, mules ear, and mesic forbs in the riparian areas. Mixed conifer/fir forest type was present on the east end of the fire on the slope up to the ridgetop. Some drainages contain aspen and willow.

P. Dominant Soils: Bonta-Toiyabe, Shepan-Polecreek, Sattley-Shepan-Trojan, Waca-Woodseye, Families

Q. Geologic Types: Tertiary pyroclastic rocks and volcanic mudflow deposits with Cenezoic volcanic rocks

R. Miles of Stream Channels by Order or Class: Total miles = .4

S. Transportation System: Trails: N/A miles Roads: Total miles = 1.25

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 126 (low) 204 (moderate) 36 (high)

B. Water-Repellent Soil (acres): 70

C. Soil Erosion Hazard Rating (acres): 330 (low) 36 (moderate) 0 (high) 0 (very high)

D. Erosion Potential: 1 tons/acre

E. Sediment Potential: 68 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

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

B. Design Chance of Success, (percent): 85

C. Equivalent Design Recurrence Interval, (years): 100

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 30

F. Design Flow, (cubic feet / second/ square mile): 311

G. Estimated Reduction in Infiltration, (percent): 12

H. Adjusted Design Flow, (cfs per square mile): 109

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency

Summary

The BAER assesement team has determined that an emergency does exist in regard to increased erosion and runoff from the burned area and road system which threatens to increase sedimentation and lower water quality in the Last Chance Watershed. The Grease fire burned a total of 366 acres, less than 1 percent, in the Last Chance watershed which forms the headwaters to the North Fork of the Feather River, part of the State Water Project. Twenty percent of the State's water originates from the North Fork of the Feather River Watershed.

Last Chance is a critical watershed for water resources. In 1994, Clifton reported, in the East Branch North Fork Feather River Erosion Control Strategy, that sediment yields to streams within this watershed were 394 tons per year/mile. As a result of this report, this watershed became a priority watershed for restoration. Over 3 million dollars of Federal, State and partner dollars have been invested to arrest accelerated erosion and improve hydrologic function in the watershed.

In order to protect this investment there is a need to mitigate any potential for erosion and sedimentation within the watershed. Even small impacts could offset the upward trend of this critical watershed. Soil and water quality impacts within the Grease Fire were rated low to moderate by the assessing hydrologist and soil scientist. Their assessment was based on amount of hydrophobic soils, and the intensity at which the vegetation burned. Impacts to soils from erosional loss will impact soil productivity. As a result, vegetation regeneration and reestablishment of conifer forest within the burned area are negatively affected.

Burn severity for most of the fire was rated low to moderate, with islands of high severity. The high burn severity was concentrated in the center of the fire. Drainage density is very low, with no perennial streams. One intermittent streams parallels road number 25N26 and crosses road number 25N34 through a culvert.

It is **critical** that all land and channel emergency treatments are accomplished prior to late summer thunderstorms. These storms on a biannual average produce 16 inches of rain in six hours or 30 inches in a 24-hour period. Intense rain storms on the fire area will generate surface erosion and movement of soil and ash into the stream system.

Table 1 Summary of Emergency Determination by Values at Risk

VALUES	EMERGENCY DETERMINATION
Human Life and Safety	
- Safety of Forest Visitors	No emergency exists as a result of the Grease Fire. No debris flow risk and no rock fall hazards are associated with roads or trails.
Private Property	There is no private property within the fire boundary or close enough to be influenced by the fire. There are archaeology sites within the fire, however there is no emergency related to runoff and erosion issues.
Forest Roads-	<p>A 200 foot segment of relatively steep road (25N04) dumps runoff onto a high burn severity area (see BAER treatment map for location). Fire conditions have created a hazard relative to gully formation. See hydro report for recommended treatment.</p> <p>A half mile segment of the 25N26 road is located within the influence of an intermittent drainage called Upper Willow Creek. Fire conditions and the poor road location have created a high probability of sedimentation to the channel. The channel has no real buffer. The road is located within 10 to 50 feet of the channel on one side. The opposite side is also a sediment source because the immediate toeslope is steep and burned. See hydro report for recommended treatments.</p>
Water Quality & Fisheries	
- Last Chance Watershed	An emergency exists. Increased sedimentation due to hillslope erosion and increased runoff from roads.
- Fisheries Value at Risk	An emergency exists. There are no fish bearing streams within the fire perimeter. However, all the drainages within the fire perimeter are first or second order channels to Willow Creek, a known fishery. The threat is ash and sediment from the fire will fill in the spawning gravels and change the macroinvertebrate habitat. There is no Mountain Yellow-legged Frog habitat in the area.

Soil Productivity	No emergency exists. The modeled erosion rates are very low, even in the high burn severity areas (makes up 20% of the fire area). Most of the fire (56%) resulted in a moderate severity burn. Litter fall is expected to produce adequate ground cover to protect the soil where tree canopy is abundant (the typical condition). Hydrophobic conditions are present but of limited extent.
General Flooding and Debris Flow	No emergency exists. No debris flow or debris slide features were noted during the field and aerial recon. The potential for flooding and high runoff is low; therefore the risk to life is low. See hydro report for a complete discussion of this issue.
Ecosystem Structure and Function	
- Noxious Weeds -	An emergency exist. A wash station was brought to the fire on the second day of the incident. The threat is invasion of new noxious weed species. Dozer line and hand line within the fire perimeter make good colonization areas.
- TES Plants	No emergency exists for TES plants. A search of the district data base, files and GIS system showed that no Plumas National Forest Sensitive Plants were documented from within the fire area.
- TES Wildlife	No emergency exists. Three Northern goshawk Protected Activity Centers (PAC) are located in the vicinity, but all three are at least ¼ mile away from the fire perimeter.
Heritage Resources	
- Heritage Sites	No emergency exists. Three known sites were in the burned area no threat was identified.

Values at Risk

Ecosystem Stability

There is a threat of noxious weed introduction from suppression equipment. A wash station was brought to the fire on the second day of the incident. So suppression equipment that was on the fire the first day may have brought in noxious weeds. There is a need to conduct noxious weed detection survey the next growing season along dozer lines and staging areas.

Water Quality

A threat exists because intense summer thunderstorms occur in the area and can cause increased sedimentation to the Last Chance watershed. There is also the threat that sediment storage on slopes within the burn area could be mobilized during high precipitation events and ultimately be transported into the stream channel. Table 4 displays the modeled changes to peak flow.

Table 4 Runoff response (Peak Flow/Discharge) by Return Interval

Return Interval	Normal Peak Flow (cfs)	Post Fire Peak Flow (cfs)
2	100	107
5	268	287
10	359	384
50	589	631
100	1540	1649

Although the expected erosion rate is not high, the increased runoff from the burned lands and road surfaces has the potential to impact water quality in the Last Chance watershed through aggradation and deposition of sedimentation and ash and could affect the fishery along Willow Creek that is approximately 0.20 miles downstream from the edge of the fire boundary. Drainage density is very low, with no perennial streams and located closer than 1000 feet from the burned area. The greatest threat is from rill and gully erosion resulting from loss of infiltration and ground cover.

There is also one intermittent stream that crosses the 25N34 road through a 2 foot diameter culvert. Vegetation along the intermittent drainage have intermittent pockets of moderate to low severity burned areas along most of the 0.5 mile length of stream that is located in the burn area. The threats are increases in erosion will cause the culvert to plug, over top, erode fill and cause gulling on the road surface as well as the downslope side of the burn

Planned Treatment Narratives

Land Treatments:

Only noxious weed detection survey is proposed.

Channel Treatments:

No treatments proposed.

Road Treatments:

The following road treatments will reduce the amount of sediment, ash, and nutrient input into the intermittent channel that drains directly into a perennial fishery outside of the burn area, thereby reducing the effects to water quality.

24N04 - Increased runoff due to lack of ground cover and hydrophobicity may cause further horizontal and lateral movement of sediment from surface runoff that is directly flowing onto the high burn severity area due to a breach of the outside berm on the 24N04 road (see BAER treatment map for location). To help dissipate the energy that is associated with the runoff from the 200 foot segment of the relatively steep road (25N04), it is recommended that existing down woody material (e.g. punky logs, rocks etc.) could be spread out at the leadout of where the water flows into the burn area. Also, to help further capture any sediment that may travel through the dissipater and encourage infiltration, it is recommended that straw wattles should be placed on the downslope portion of the dissipater. The recommendations would help reduce the estimated loss of 2.1 yds³ of sediment.

25N26 – There are 6 dips that would be constructed along 0.5 miles of the 25N26 road within the burn area. All of the existing leadouts had an area of deposition on the streamside of the road that varied in distance from 10 feet to 40 feet from the channel's edge. Also, more than half of the leadouts have sediment deposition from surface runoff laced with sediment that was transported from the road, into a mosaic low to moderate burn severity streamside area. The current concern is that there is little vegetation and/or material to prevent direct entry of sediment from high flows into the channel. Therefore, to prevent direct delivery of sediment into the channel and allow streamside area to revegetate and recover, it is recommended that existing woody material (e.g. logs etc.) and straw wattles be used to act as a soil catchment for sediment. It is recommended that the leadouts be rocked to help act as energy dissipaters for surface runoff associated with slope and length of road segments. The recommendations would help reduce the estimated loss of 6.4 yds³ of sediment.

25N34 - The moderately burned slopes above the intermittent channel that flows into the 24N34 road culvert has the potential to produce woody debris and sediment that may plug the culvert and cause road overtopping or washouts. Field observations indicate that the culvert had been overtopped before, possibly from the 2005 20-year flood event, which caused rilling on the road (25N34) and create a side channel that parallels the downstream portion of the channel for approximately 25 feet before tying back into it. Overtopping and draining onto and below the road has the potential to create further erosion in the roadbed and/or compromise the

integrity of the culvert. The culvert inlets should be cleaned out and a rocked spillway should be constructed from the creek onto the 25N34 road. The recommendations would reduce the likelihood the further erosion and prevent the loss of approximately 3 yds³ of sediment.

B. Emergency Treatment Objectives:

The primary objective of the proposed emergency rehabilitation is to take prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to property and prevent unacceptable resource degradation.

The objective of the emergency treatments is to reduce sediment delivery from burned hillslopes and roads into the stream system. Slopes range from 3 percent in the channel bottom to 35 percent on the hillslope.

Road Treatments:

Burned slopes above road culverts have the potential to produce woody debris and sediment that may plug the culverts and cause road washouts. Road treatments will reduce the amount of sediment transported to ditches and stream channels. Recommended treatments include cleaning culvert inlets and installing rolling dips with energy dissipaters on the downslope side of native surface roads.

Land Treatments

Unwashed equipment has the potential to transport noxious weeds into the burned area especially where soil has been disturbed by hand or dozer lines. With out competition from existing vegetation they can easily colonize a site. Early detection of noxious weeds is the best prevention so the recommendation is monitoring.

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

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

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads	90	90	100
Other			

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 type="checkbox"/> Range	<input type="checkbox"/>
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering	<input type="checkbox"/>
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/>

[X] Fisheries [] Research [] Landscape Arch [X] GIS

Team Leader Trainee- Terry Miller
Hydrologist – Roberta Van de Water
Botany Trainee – Michael Friend
GIS Trainee – Terry Cross

Soils – Alex Janicki
Hydrologist Trainee – Antonio Dueñas
Archeology Trainee – Mary Kliejunas
Joel Schultz – Wildlife Support

Team Leader Barbara Drake, Plumas NF

Email: bdrake@fs.fed.us

Phone: Barbara (530)836-7145

FAX: Barbara (530)836-0493

H. Treatment Narrative

Road Treatments

- One culvert has reduced capacity of 50 percent this culvert will need to be cleaned to allow for the expected increased runoff. Predicted loss without treatment is estimated at 3 yds³
- Install six road dips with rocked or woody material dissipaters on 25N26 to reduce road runoff and trap road sediment. Predicted loss without treatment is estimated at 6.4 yds³.
- Install energy dissipaters to control soil loss and erosion due to breach of outside berm on 25N04. Predicted loss without treatment is estimated at 15 yds³.

I. Monitoring Narrative:

Effectiveness monitoring of treatments is requested for one year.

Monitoring of treatments will consist of a field visit with ocular inspection of treatment effectiveness. Two days are planned to inspect all work.

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

			NFS Lands		
		Unit	# of	WFSU	Other
Line Items	Units	Cost	Units	SULT \$	\$
A. Land Treatments					
noxious weed detection survey	each	1904	2	\$3,808	
<i>Subtotal Land Treatments</i>				\$0	
B. Channel Treatments					
None Recommended				\$0	
<i>Subtotal Channel Treat.</i>				\$0	
C. Road and Trails					
dips on road 25N26	each	100	6	600	
outlet dissipaters (rock or woody material)	each	85	6	510	
culvert cleaning	each	300	1	300	
Energy dissipaters 25N04	each	85	1	85	
Straw wattles for dips and berm breach	each	30	10	300	
Personnel construction (all treatments including spillway)	each	3204	1	3204	
<i>Subtotal Road & Trails</i>				\$4,999	
D. Protection/Safety					
<i>Subtotal Protection/Safety</i>				\$0	
E. BAER Evaluation					
assessment team	each	6000	1	\$12,671	

<i>Subtotal BAER Evaluation</i>				<i>\$11,162</i>	
G. Monitoring Cost	each	242	2	\$484	
<i>Subtotal Monitoring</i>				<i>\$4,292</i>	
H. Totals				\$21,962	

PART VII - APPROVALS

1. /s/ Robert G. MacWhorter July 27, 2006
for JAMES M. PEÑA, Forest Supervisor (signature) Date

2. /s/ Beth G. Pendleton (for) 8/2/06
Regional Forester (signature) Date