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

Date of Report: 11/1/04

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 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)

[X] 2. Interim Report
[X] 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: Freds

B. Fire Number: CA-ENF-018044

C. State: California

D. County: El Dorado

E. Region: Region 5

F. Forest: Eldorado National Forest

G. District: Placerville and Pacific Ranger Districts

H. Date Fire Started: 10/13/2004

I. Date Fire Contained: 10/20/2004

J. Suppression Cost: Est. $ TBA

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):Suppression rehab activities on-going
2. Fireline seeded (miles):0
3. Other (identify):

L. Watershed Number: 1802012901 (South Fork American River-Lake Aloha)
1802012903 (South Fork American River-Alder Creek)
1802012904 (Silver Creek)

M. Total Acres Burned: 7,513

NFS Acres **4,373** (**58%**) Other Federal (**0**) State (**0**) Private **3,140** (**42%**)

N. Vegetation Types: Mixed conifer-Pine, Mixed conifer-Fir, Ponderosa Pine and Upper Montane Mixed Chaparral

O. Dominant Soils: The following major soil types occurred in the burn area:

- Chaix-Pilliken-Rockoutcrop-the soil textures are coarse sandy loam to rock outcrop on 30-75 % slopes, well drained to excessively drained, with moderately rapid permeability and very high erosion hazard rating (35% of burn)
- Pilliken – the soil textures are coarse sandy loam to sandy loam on 30-50% slopes, well drained, with moderately rapid permeability and high erosion hazard (18% of burn)
- Holland-Pilliken association – the soil texture are loam to coarse sandy loam on 30-50% slopes,well drained, with moderately slow to moderately rapid permeability and high erosion hazard rating (16% of burn)
- Waca –Windy complex – the soil textures are gravelly sandy loams to cobbly sandy loams on 5-30% slopes, well drained, with moderately rapid permeability and moderate erosion hazard rating (8%of burn)
- Crozier-Cohasset – the soil textures are loams to gravelly/cobbly sandy loams, well drained, with moderate permeability and moderate erosion hazard rating (15% of burn)

P. Geologic Types: Granitic rocks (4,140 ac), Mehrten Fm. (1,287 ac), Gabbroic/Doritic rocks (1,871 ac), Shoofly Complex (197 ac), and alluvium/glacial deposits (16 ac).

Q. Miles of Stream Channels by Order or Class: Ephemeral -50 mi., Intermittent – 6 mi., Perennial – 6 mi.

R. Transportation System

Trails: 5 miles Roads: 41 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1,645 (22%) (high) 3,714 (49%) (moderate) 2,140 (29%) (low)
(14 acres/>1% is barren/rock areas)

B. Water-Repellent Soil (acres): 5359

C. Soil Erosion Hazard Rating (acres):
___ (low) 827 (moderate) 6,686 (high)

D. Erosion Potential: 28 tons/acre

E. Sediment Potential: 13,824 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): 5

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 6.5

F. Design Flow, (cubic feet / second/ square mile): 49

G. Estimated Reduction in Infiltration, (percent): 22

H. Adjusted Design Flow, (cfs per square mile): 294

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

BAER assessment took place under less than optimum conditions. The Freds Fire occurred late in the season. Starting on October, 16, 2004, prior to containment of the Freds Fire, a series of fall storms deposited over 5 inches of precipitation on the burn area. This led to El Dorado County Office of Emergency Services restricting access to the area during an evacuation of Kyburz. Additionally, survey work had to contend with some areas being under snow. Based on field reviews and analysis, the BAER Team identified the following emergencies as a consequence of the Freds Fires as per FSH 2509.13:

1. Threats to Human Life: The following values were identified as being "at risk" during the initial survey of the Freds Fire: 1) users of U.S. Highway 50, 2) users of Granite Springs and Weber Mill roads, 3) residents of Kyburz, 4) occupants of Silver Fork School, 5) occupants of 29 Mile Guard Station, and 6) users of the Pony Express Trail.

   Analysis does not indicate that an additional rockfall risk exists from the Freds Fire for users of U.S. Highway 50. Caltrans has normal maintenance procedures for handling rockfall from cutslope area within their right-of-way. U.S. Highway 50 users will be potentially at an increased risk of debris flows where some drainages cross the highway. No treatment for preventing or mitigating debris flows is implementable on national forest system lands due to steep channel gradients and similar site conditions. High water flows in channels coming form the burned area may wash debris down onto the road or impact drainage structures. Caltrans and appropriate El Dorado County authorities will be notified of this risk to ensure it is addressed in their response plans.

   Gates and road closure signs are being posted at each end of the Granite Springs Road (FS road 11N99) which accesses the majority of the fire area. Implementation for this approved treatment in the initial BAER request for the Freds Fire addresses the risk to human life on this road. The Granite Springs Road is currently closed to the public, except for access by Sierra Pacific Industries (SPI) which is the major private landowner within the fire perimeter. Existing gates are now closed to prevent access to Weber Mill road.

   Residents of Kyburz are at an increased risk of debris flow hazard depending on future weather conditions. There is a high probability (>20%) that debris flows will occur on slopes with gradients greater than 40% within moderate to high intensity burn areas during severe winter storm events. Common debris flow mitigation measures such as debris basins and deflection walls are unsuitable for installation on national forest system land due to the slope steepness and channel gradient. Similarly, there are threats of flood flows within existing channels through the community that are a danger to anyone near or in the floodplain. El Dorado County will be informed of this situation to ensure it is incorporated into the county response plans and so that appropriate evaluation of mitigation sites on private lands can be done. Cooperation with El Dorado County will be undertaken to support their effort, through installation of a weather station to improve their forecasting of warnings and evacuations.

   The Freds Fire increased risk along the Pony Express Trail from hazard trees and from the loss of several burned bridges. The trail will be closed and signed to that effect.

   During storm events there is a general danger posed by flood flows and debris flows to forest workers, hikers, hunters, and other forest users if they are near or in channels coming from the high to moderate burn severity areas.

   Additional field visits between the initial and interim report indicated that the orginal concerns for the threats to human life for the occupants of the Silver Fork school and the 29 Mile Forest Service Guard Station were reduced because of their location in relationship to potential high hazard zones (debris flow drainages).

2. Threats to Property: A number of values "at risk" were initially identified downstream or downslope from the Freds Fire including: 1) U.S. Highway 50, 2) several structures in the community of Kyburz, 3) Granite Springs and Weber Mill roads, 4) Kyburz water supply, 5) 29 Mile F.S. Station, 6) Silver Fork School, 7) Silver Fork water system, 8) SBC phone lines, 9) PG&E power lines, and 10) Kyburz landfill (closed).

   U.S. Highway 50 is a primary artery between the Central Valley and Lake Tahoe. The economic losses due to its closure have been abundantly manifested in 1983 and 1997 when large landslide required closure of the road during debris removal. There is no evidence that large landslides are more likely due to the effect of the Freds Fire on the landscape. Debris flow potential is increased (as described above) and may result in damage to U.S. Highway 50 when they pass along channels crossing the highway.

   Channels passing through the community of Kyburz have an increased potential for debris flows and flooding. Some residences and other structures including the Caltrans maintenance yard are potentially at risk from this type of occurrence. Debris flows commonly "raft" along large woody debris and boulders at speeds as high as 12 miles per hour that cause impact damage to any objects within their flow path. Flood flows could fill channels and nearby low-lying areas. Structures located in these areas, including some less apparent channels, may be damaged by debris. water, and sediment.

   Granite Springs and Weber Mill roads represent significant investments within the Freds Fire area. They are also important transportation routes for management and use of the area. The recent storms, coupled with the effects of the fire, have left the road drainage system vulnerable to increased runoff and sedimentation and possible failures. Inside ditches, culvert inlet basins, and cross drains are already suseptible to failure and future precipitation events will only increase the probability of failure. The funds provided for flood patrol and similar preventative measures through approval of the initial Freds BAER request will protect this investment (property).

   Kyburz water supply system has already been impacted by sediment filling diversion impoundments and fouling intake structures. The County Health Department has shut down this system serving 115 homes. Water will be pumped to the treatment plant from the South Fork of the American River until next spring. No increased risk due to the effects of the Freds Fire was found for 29 Mile F.S. Station, Silver Fork School, Silver Fork water system, SBC phone lines, PG&E power lines, or Kyburz landfill (closed).

3. Threats to Water Quality: There is a high potential for water quality degradation due to high water flows, sediment generation, and debris flows. All of the subwatersheds within the burn area are expected to see increased sedimentation. Potential for short-term effects on water quality are especially high in the SFAR-Kyburz and SFAR-Fry Creek subwatersheds. The combination of the fire, slope hydrology modifications, and potential debris flows compound this concern.

   The Pony Express Historic Recreation Trail passes across the lower slopes below the Freds Fire area. It is expected that some erosion may occur near the channel crossing and add sediment to that being delivered from the fire area.

   Granite Springs and Weber Mill Roads cross within and downslope of parts of the Freds Fire. There is increased potential for water and debris to affect drainage structures and lead to erosion of the road prism, culvert damage, and similar effects that would increase sediment and further degrade water quality. The funding for storm patrols and drainage clearing funded under the initial Freds Fire BAER request is being implemented to mitigate this potential.

   The Kyburz Mutual Water Co. consisted of an access road, three small dams and reservoirs with a capacity of 50,000 gallons, a water treatment plant, four 25,000-gallon storage tanks, and thousands of feet of pipeline. The runoff from the first post-fire storm events fouled the water in the reservoirs with sediment and ash and led to the county health department shutting down the plant. The plant serves 115

homes. The plant is pumping water out of the South Fork American River and expects to do so into next spring. Therefore, this potential threat has been realized and mitigated.

The Silver Fork Water Association has a special use authorization to maintain a well, pump house, access road, and a 10,000-gallon concrete storage reservoir tank. The BAER Team visited the site and observed that the facility suffered severe damage from the fire and was out of service. The site did not appear to be at risk from post fire runoff or debris flows.

Ice House Reservoir is expected to be noticeably affected by the Freds Fire. Only a small portion of the drainage into Ice House Reservoir falls within the burn and that was found to be of moderate burn severity. The South Fork of the American River will certainly be the receiving water from the increased sediment due to flood flows and debris flows. However, the water quality degradation should be limited by the volume of discharge past this area in relation to the expected sediment delivered to the channel.

4. Threats of Noxious and Invasive Weeds: The largest infestation of Star Thistle on the Eldorado NF is within the Cleveland Fire area (200 acres). This infestation is in its third year of herbicide treatment which has significantly reduced the density of the infestation. The Freds Fire re-burned part of the Cleveland fire. This threatens to undo the effort to address the Star Thistle infestation because fire generally increases expansion rate of noxious weeds to 25%.

The second threat from noxious and invasive weeds is from dozer lines and the increased expansion rate on other small populations not currently under reatment but within the boundaries of the Freds Fire. No washing of equipment was in place during the suppression of the Freds Fire to prevent weed seeds that might be on dozers from being transferred to this area.

No threats to wildlife habitat or other resource was found during the BAER survey. While heritage resources are present, the impacts to these known sites were limited to suppression activities and will be addressed by the fire organization.

B. Emergency Treatment Objectives:

1. The primary treatment objective for the fire area is to limit public access and reduce the public exposure to possible life threatening situations.

- By gating the two main entrances into the fire area and restricting general public access, the exposure to hazard trees, road surface, drainage structure failures, and associated resource damage outside of the road prism would be reduced. This is also accomplished by closure of the Pony Express Historic Recreation Trail.
- Another <u>important</u> component for meeting this objective is to communicate the findings of the BAER team to Caltrans and the El Dorado County Emergency Services. Caltrans needs to be made aware of information affecting the likelihood of rock fall, debris flow, and flood impacts to U.S. Highway 50 and their maintenance yard supporting this effort in Kyburz. El Dorado County Emergency Services will bear the responsibility for keeping the residents of Kyburz and travelers along U.S. Highway 50 safe from flood and debris flow hazard. The County has retained geologic expertise for this purpose. Any debris flow or flood prevention/mitigation will need their evaluation because those measures will affect private land. They will likely need to establish an early warning system for the residents of the area. Any support information for that purpose that can be provided should be provided.

2. Another objective is to limit loss of forest investments in infrastructure and project accomplishments.

- The use of a "storm patrol", which would patrol the roads in the fire area prior to and possibly during storm events, would be a pro-active road maintenance operation to keep drainage structures free of sediment and debris. This storm partol would be essential in maintaining the road surface and drainage structures to protect the road resource and associated water quality. Similar patrols of the Pony Express Historic Trail will accomplish the same benefit for this infrastructure.

- The Eldorado National Forest has invested significant time and funds to reduce the infestation of Yellow Star Thistle in the Cleveland Fire area. The re-burning of this area will increase the expansion rate of the weed and threatens to undo the work of the last 3 years. Aggressive spraying of the expansion area will compensate for this effect and continue reduction of this infestation.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:
The first damage-producing storm occurred concurrently with the BAER team arriving on the incident. Since the initial storm occurred in mid-October, there still exists the possibility of drier conditions to initiate effective treatments, such as storm patrol operations. This early initial BAER report is intended to initiate funding for closing off the area to the general public by use of gates and to immediately begin the "storm patrol" activities prior to any upcoming storm events.

Land **80** % Channel **N/A** % Roads **70** % Other **70** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90%	90%	95%
Channel			
Roads	75%	90%	95%
Other			

E. Cost of No-Action (Including Loss): **$315,000 and high liklihood of loss of life** (This figure includes the loss associated with roads covered under the initial Freds BAER request)

F. Cost of Selected Alternative (Including Loss)**: $131,788 and no increased loss of life** (this figure includes the roads already approved roads funding and assumed loss from failure of all proposed actions)

G. Skills Represented on Burned-Area Survey Team:

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

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BAER Team Members:
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Judy Rood, Archaeologist, Eldorado NF
Dorit Millard, Archaeologist, Eldorado NF

Ed Augusta, Road Engineer, Eldorado NF (retired)
Lynda Philipp, Admin. Assistant, Eldorado NF
Deb Tatman, GIS, Eldorado NF
Chuck Mitchell, Resource Advisor, Eldorado NF
Steve Markman, Hydrologist (trainee), Eldorado NF
Mike Taylor, Botanist, Eldorado NF

H. Treatment Narrative: (Describe the emergency treatments, where and how they will be applied, and what they are intended to do.)

The most significant treatment is to effectively communicate with Caltrans and El Dorado County Emergency Services the flood and debris flow hazard information developed by the BAER team. This ensures they are aware of the possible need for site specific mitigation measures within the private lands, possible delineation of differeing hazard within that area, and requirements for any warning system they may need to establish to protect the residents.

Land Treatments:
This treatment to protect the investment made in reducing Yellow Star Thistle infestation would involve spraying the projected expansions of currently documented weed infestations being treated. The existing environmental documents supporting the herbicide work for this purpose would permit this additional area to be covered with the planned follow up spraying of the primary project area.

Channel Treatments:
N/A

Roads and Trail Treatments: The following are the initial emergency treatments approved:

1. Gate Installation: install two gates, one at each access point on the Granite Springs Road (FS road 11N99) to implement administrative closure to protect the general public from exposure to hazard trees and road surface and drainage structure failures.
2. Implementing "Storm Patrol": the storm patrol would patrol the roads in the fire area prior to and possibly during storm events. The patrol would be a pro-active road maintenance operation to keep drainage structures free of sediment and debris. This storm partol would be essential in maintaining the road surface and drainage structures to protect the road resource and associated water quality.
3. Additionally, 2 days of patrol and closure signs for the Pony Express Historic Recreation Trail are requested in this report to protect this trail and limit its damage.

Structures: N/A

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.)

Assessment for Noxious and Invasive Weeds (Included under BAER assessment, part E of the Table VI

The assessment survey will be done within the fire area, roadside disturbances, firebreaks (dozer and hand), landings used to stage equipment, areas used as fueling stations, and fire camps for new infestations of noxious weeds that may have been introduced accidentally by equipment or personnel. No equipment inspections occurred prior to equipment being assigned to this fire. This fact enhances the chance that weed seeds were introduced into formerly weed-free zones of the Fire area. Noxious weed assessment will include hand treatments of new weed infestations when encountered and where it is a practical treatment. If noxious weed expansion is greater than can be treated with hand pulling or incidental treatment, then an interim request will be submitted for funding the needed work.

Treatment 1. Weed Monitoring/hand-pulling surveys

1. Treatment Type – Surveys of fire disturbance areas to detect new infestations of noxious weeds

2. Treatment Objective –Eliminate new infestations before they become established or set seeds.

3. Treatment Description – Monitoring of the fire areas within the Fred's Fire to determine if suppression or rehab efforts resulted in the introduction of noxious weeds. These areas include dozer and hand lines, drive roads, staging areas, and adjacent burned areas. This will be performed by a GS-7 bio-tech.

4. Treatment costs : 4 – 10 hour days monitoring/hand pulling 40 hours @ 16.50 hr. - $660

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

A. Land Treatments										
*Noxious Weed spray	acres	$150	7.5	$1,125	$0		$0		$0	$1,125
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$1,125	$0		$0		$0	$1,125
B. Channel Treatments										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
*Trails Patrol	days	$250	2	$500	$0		$0		$0	$500
*Trails erosion control	days	$588	2	$1,176	$0		$0		$0	$1,176
*Trail Closure	maker	12	6	$72	$0		$0		$0	$72
Gates	gate	$991	2	$1,982						$1,982
Storm Patrol	days	1,128	62	$69,936						$69,936
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$73,666	$0		$0		$0	$73,666
D. Structures										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
***BAER Team**				$28,785	$0		$0		$0	$28,785
***Supplies**	unit	$250	4	$1,000	$0		$0		$0	$1,000
BAER Team		$1,500	7	$10,500						$10,500
Supplies		$1,000	1	$1,000						$1,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Evaluation				$41,285	$0		$0		$0	$41,285
F. Monitoring										
					$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				**$116,076**	**$0**		**$0**		**$0**	**$116,076**

* Interim #1 funding request

PART VII - APPROVALS

1. */s/ Michael A. Valdes (for)* *John D. Berry* — 11/2/04
   Forest Supervisor (signature) — Date

2. /s/ Vickie Jackson (for) — 11/03/04
   Regional Forester (signature) — Date