French Fire

Sierra National Forest

2500-8 BAER Assessment Report

August 21, 2014

Photo of San Joaquin River Canyon at Rock Creek and French Trail Road (FR 7S47)

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Executive Summary

On July 28, 2014, a wild fire occurred on the Bass Lake Ranger District on the west side of the San Joaquin River, between Ross Creek on the south and the Sweetwater Campground and Mammoth Pool Reservoir on the north. The fire burnt, approximately 13,835 acres of mixed vegetation types including Sierra Mixed Conifer, Ponderosa pine, Montane Hardwood, Montane Hardwood-Conifer, Mixed Chaparral, and Montane Chaparral. The fire resulted in 4,388 (32%) acres of low burn severity, 6,614 (48%) acres of moderate burn severity, 1,435 (10%) acres of high burn severity, and 1,393 (10%) acres of unburned.

A Burn Area Emergency Response (BAER) Assessement was conducted in the fire area to determine values at risk, make an emergency determination on those values at risk and and make recommendations on reducing the risk to those values.

All values at risk were evaluated and assessed in the fire area. The values at risk that were determinined to be an emergency include threats to property including: 64 miles of forest system roads, Fish Creek Campground, Southern California Edison's hydropower facility on the San Joaquin River; public safety on Forest Road 81 (FR 4S81), the French Trail and an open adit and shaft and hazardous materials at the Wisseman Mine; and ecological integrity from noxoius weed invasion. Threats to ecosystem stability from post fire effects to soil productivity were determined not to be treatable due to the lack of treatable ground.

The Initial BAER assessment recommends **$444,386** in treatments costs that includes: work on the Forest System Roads to control water; removal of down logs in the channel at the Fish Creek Campground, early detection and eradication of noxious weeds on 65 miles along dozer fire lines, other fire lines, staging areas and drop points; removal of a foot bridge on the French Trail; construction of water bars on the French Trail and closure of the French Trail until hazards have been addressed, containment of potentially hazardous materials at the Wisseman Mine, and temporary public access barriers at one shaft and at least one adit at the Wisseman Mine.

USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: 08/15/2014

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[x] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[x] 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 DESCRIPTION

A. Fire Name: French

B. Fire Number: CA-SNF-001619

C. State: CA

D. County: Madera

E. Region: 5

F. Forest: Sierra

G. District: Bass Lake

H. Fire Incident Job Code: P5H9RQ

I. Date Fire Started: 7/28/2014

J. Date Fire Contained: TBD

K. Suppression Cost: 22m

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 65
2. Fireline seeded (miles):
3. Other (identify):

M. Watershed Number: Three 6th-Field HUC12 watersheds are found within the fire area. These include: Lower Chiquito Creek (180400060702), Mammoth Pool Reservoir-San Joaquin River (180400060804) and Rock Creek-San Joaquin River (180400061001).

N. Total Acres Burned: 13,835
NFS Acres(13,832) Other Federal ( ) State ( ) Private (3)

O. Vegetation Types: Sierra Mixed Conifer, Ponderosa pine, Montane Hardwood, Montane Hardwood-Conifer, Mixed Chaparral, and Montane Chaparral.

P. Dominant Soils: Holland, Chawanakee, Chaix, Tollhouse, Neuns and Cagwin
Q. Geologic Types: The French fire area occurred within the western slopes of the central Sierra Nevada. The French Fire is located east of the San Joaquin River between Ross Creek on the south and the Sweetwater Campground on the north. The eastern side of the fire is located on steep canyon slopes of the San Joaquin River. The steep canyon slopes are dominated by mass wasting processes including rock slides, rock falls and debris flows. The geology of the fire area includes igneous intrusive and metamorphic rocks. These rocks include the Granodiorite of Whiskey Ridge and the Pilot Ridge Schist and Quartzite.

R. Miles of Stream Channels by Order or Class: Perennial -15 miles; Intermittent - 21 miles; Ephemeral – 215 miles

S. Transportation System

Trails: 4.2 miles Roads: 64.4 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1,393 (10%) unburned; 4,388 (32%) low; 6,614 (48%) moderate; 1,435 (10%) high

B. Water-Repellent Soil (acres):

C. Soil Erosion Hazard Rating (acres): Pre-Fire (5,041 Low, 7,779 Moderate)

Post-Fire 1,125 (low) 6,127 (moderate) 4,486 (high)

D. Erosion Potential: 2.6 tons/acre

E. Sediment Potential: 992 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	5-15 yrs
B. Design Chance of Success, (percent):	80%
C. Equivalent Design Recurrence Interval, (years):	2
D. Design Storm Duration, (hours):	6
E. Design Storm Magnitude, (inches):	2.2
F. Design Flow, (cubic feet / second/ square mile):	22.2 cfsm
G. Estimated Reduction in Infiltration, (percent):	27.3%
H. Adjusted Design Flow, (cfs per square mile):	39.1 cfsm

PART V - SUMMARY OF ANALYSIS

Background

The French fire started on July 28, 2014 from an escaped camp fire near Rock Creek and the San Joaquin River on the Bass Lake Ranger District, Sierra National Forest. Driven by steep terrain, low relative humidity, and wind, the fire spread quickly up Rock Creek and eventually reaching 13,825 acres.

The French Fire burned within Lower Chiquito Creek, Rock Creek tributary watersheds, of the San Joaquin River including the west and north shore of Mammoth Pool Reservoir on the San Joaquin River. The area is characterized by steep, rocky, mountainous canyons and ridges.

Approximately 58% of the burn area burned at a high and moderate soil burn severity. The rest of the fire was either low or very low soil burn severity with unburned areas within the fire perimeter. It is very important to understand the difference between *fire intensity* and *burn severity* as discussed by fire behavior, fuels, or vegetation specialists, and *soil burn severity* as defined for watershed condition evaluation in BAER analyses. Fire intensity or burn severity as defined by fire, fuels, or vegetation specialists may consider such parameters as flame height, rate of spread, fuel loading, thermal potential, canopy consumption, tree mortality, etc. For BAER analysis, we are not mapping simply vegetation mortality or above-ground effects of the fire. Soil burn severity considers additional surface and below-ground factors that relate to soil hydrologic function, runoff and erosion potential, and vegetative recovery.

General trends: The conifer forests in this area have not experienced fires in recent time leading to a large build of duff. The Team observed a long residence time leading to high soil heating in many areas including areas with intact or lightly scorched canopy. The team adjusted the BARC map was to reflect this condition.

A. Describe Critical Values/Resources and Threats:

Several critical values/resources are threatened and are at risk from storm events in the upcoming fall and winter runoff. These values at risk include: Forest System roads and trails (tread integrity and hydrologic function), ecological integrity from invasive weeds, public safety on roads and trails, and possible the hydro power facilities along the San Joaquin River.

The risk matrix below, Exhibit 2 of Interim Directive No.: **2520-2010-1**, was used to evaluate the Risk Level for each value identified during the Assessment:

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	RISK		
Very Likely	**Very High**	**Very High**	**Low**
Likely	**Very High**	**High**	**Low**
Possible	**High**	**Intermediate**	**Low**
Unlikely	**Intermediate**	**Low**	**Very Low**

Threats to Life and Property

The combined factors of severely burned watersheds directly above Forest Service assets (level 4, 3 and 2 roads) Mammoth pool Reservoir and the hydropower infrastructure on the San Joaquin River, large volumes of loose, stored sediment in channels and on the steep slopes, moderate and high soil burn severity with water repellency, and the location of the assets directly below those watersheds

indicate a high risk to life and property creating an emergency situation. The Wisseman mine site contains open adits, open pits and potentially hazardous materials. Hikers and equestrians are also at risk from hazard trees, and washouts while traveling along the French Trail in the burn area. There is a risk to Fish Creek and Rock Creek Campgrounds from flooding and debris, though the risk doesn't pose a direct, imminent threat to life.

Table 1: Post – Fire Watershed Response

Watersheds/Subdrainages	*Design Flow in cfs	Adjusted Flow in cfs	Increase in Water Yield (%)
HUC12 Rock Creek-San Joaquin River	1498	1822	17.8
HUC12 Lower Chiquito Creek	957	1001	4.4
HUC12 Mammoth Pool-San Joaquin River	695	696	0.1
Subdrainage A (unnamed Trib. to Ross Creek)	12.3	23.1	46.8
Subdrainage B (Hogue Ponds)	3.0	6.6	53.7
Subdrainage C (Fish Creek CG)	98.9	112.8	12.3
Subdrainage D (Rock Creek CG)	230	285	19.3
Subdrainage E (Slide Creek Bot)	33.9	43.3	21.7
Subdrainage F (French Trail Bridge)	75.8	165.5	54.2
Subdrainage G (4S81 near Shakeflat)	6.0	26.6	77.3
Subdrainage H (4S81 at Shakeflat)	59.8	73.0	18.1
Subdrainage I (Chiquito Creek at Wagner's Mammoth Pool Resort)	1510	1530	1.3

*Based on a 2 year-6 hour design storm of 2.2 inches

Roads- Road damage, runoff, erosion, and public safety – Minaret Road (FS 81) (rock fall, and debris flows)

The transportation system consists of approximately sixty-four miles of National Forest System Roads (NFSR) within the fire perimeter. Of the sixty-four miles of NFSR within the fire perimeter, approximately fifteen miles are suitable for passenger cars (maintenance level 3 and 4) and forty-nine miles are suitable for high-clearance vehicles (maintenance level 2). Most of the roads are constructed on decomposed granite of various grading's, ranging from ¾" to fine sand. This material is very susceptible to erosion degradation. As a result, uncontrolled runoff can result in significant damage and potential loss to the road system.

a) The roads are at increased risk due to:
   i. Erosion damage as a result of increased storm water runoff velocity and volume on and across the road templates.
   ii. Degradation of road surfaces resulting from fire suppression activity.

b) The consequences of the fire on the roads will be:
   i. Primarily manifested as increased storm water runoff creates erosion damage, including total loss, to the road surfaces and road templates.
   ii. Secondary consequence of the fire related to the road system is the increase adverse effect of storm water runoff and decreased control of storm water runoff to adjacent watersheds.
   iii. Public Safety is affected due to a significantly increased hazard resulting from destabilized rock slopes, falling trees, and ash, sediment, debris on the road bed.

c. Emergency Determination

Imminent hazards to the roads system vary from minor sloughing and culvert blockage to partial or total loss of road template. A risk assessment was conducted on the assessed roads and the following roads rated as "high" risk:

Road #	Risk Assessment
4S81	VERY HIGH
4S81N	HIGH
4S81P	HIGH
4S81X	HIGH
6S12X	HIGH
6S25	HIGH
6S25X	HIGH
7S07	HIGH
7S15Y	HIGH
7S35	HIGH
7S40	HIGH
7S40F	HIGH
7S44B	HIGH
7S47	HIGH
7S47Y	HIGH

Thirty-nine additional roads were surveyed and determined to be "low" risk and are not proposed for treatment.

French Trail

The French trail is a popular hiking and equestrian trail that traverses approximately 4.2 miles through the fire area. Approximately 17% burned with high severity, with 57 % burning at moderate severity. Sections of the trail are very steep, with some existing erosion control structure burned in the fire. Standing dead trees also pose a serious threat to people using this trail. There is a high likelihood of increased runoff from the hill slopes on the trail degrading trail tread and concentrating water and sediment leading to gullying on the downslope of the trail leading to a deterioration of hydrologic function. Many large, burned trees have fallen over the trail since the fire and are blocking access in many locations. This scenario creates an increase in user trails, as trail users tend to navigate around the obstacles down and up slopes to gain access to the main trail tread. The use of this trail increases the potential for additional soil erosion and vegetation impacts. Navigating around tree obstacles usually require traversing unstable slopes, more so when burn conditions exist and may be a safety concern for trail users. Many burned or partially burning trees exist along this trail section are standing are likely to fall randomly and present a serious threat to trail user safety over the next month following the fire, and most likely this condition of burned trees that are likely to fall will continue over the next year after the fire, particularly during storms when windy weather can occur. Unstable trail tread exists along this section due to the fire impacts and intermittent trail sections are not discernible due to the burned conditions that have created safety hazards for trail users. Burned out stumpholes are adjacent to the trail, in some cases compromising the trail tread leading to a significant safety hazard for both hikers and equestrians. The Bridge over Shakeflat creek is at risk of damage or obliteration due to increased peak flows and sediment. There is a 54% increase in peak flow compared to pre-fire conditions at this site.

Risk Assessment –Life, Property, (Trail tread) and hydrologic function

Probability of Damage or Loss: Likely. This determination is due to increased rock fall, sedimentation, hazard trees, erosion rates and debris flow potential already occurring post fire on the very steep slopes above the trail.

Magnitude of Consequence: Major. Though it is very unlikely hikers or equestrians will be out along the trail during rain events due to closure of the area, if someone is on the trail there is a chance they could experience harm. The stump holes adjacent to the trail present a significant safety hazard. In addition, the trail tread and surround hill slope hydrologic function would likely be compromised by increased flow concentrating on the trail.

Risk Level: **High**

Fish Creek and Rock Creek Campgrounds:

These are popular campgrounds within the fire boundary. There is a slight increase in post-fire peak flows at both campgrounds. There is an increase in debris flow potential above the Fish Creek Campground. There is a large amount of woody debris in Fish Creek as it flows through the campground. Higher peak flows, debris and potential debris flows can clog the channel potentially impacting the infrastructure. There is a minor risk to life as the campground is closed during the most of the rainy season. There is a higher risk to life if a thunderstorm occurs the following summer. Table 3 displays burn severity by miles/sq. above the two campgrounds.

Table 3.

Subdrainage	Soil Burn Severity % Area (Miles^2)				Subdrainage Area (Miles^2)
	High	Moderate	Low	Unburned	
Fish Creek CG	0.9	6.9	6.3	85.9	4.9
Rock Creek CG	1.7	13.1	16.8	68.4	10.8

Risk Assessment:

Probability of Damage or Loss: Possible. This determination is due to increased peak flow potential entering the campground and the high likelihood the campgrounds would be closed during the rainy season.

Magnitude of Consequence: Moderate: The campgrounds will likely be closed during the rainy season mitigating the effects to human life. The campground infrastructure is mostly out of the floodplain of the projected peak flows.

Risk Level: **Intermediate**

Wisseman Mine:

The old Wisseman Mine site contains adits, open pits and potentially hazardous materials. There is a potential threat to human life and safety and water quality from the fire burning vegetation and old infrastructure associated with the mine. During the assessment the BAER team found one adit, one open pit and a large mobile home (abandoned, not used for living space) that was burned and destroyed by the fire. The site is now visible from the trailhead for the French trail and FS 81 creating a potential risk for Forest visitors. Site records indicate additional structures that likely burned, adits and open shafts that may have been exposed by the fire.

The California Integrated Waste Management Board (CIWMB) has stated that ash and debris from residential structures consumed by wildfires may contain concentrated amounts of heavy metals, such as arsenic, barium, beryllium, copper, chromium, cadmium, lead and zinc. Further, according to the CIWMB, the occurrence of these metals in burned residential debris has been demonstrated in the

"Assessment of Burned Debris Report for the Cedar and Paradise Fires, San Diego County, CA" dated December 2003. It is also known that asbestos remains are found in burned debris and poses a threat when disturbed and airborne. Common household products found in burned structures are usually present such as pesticides, fertilizers, paints and thinner, automobile products and other petroleum based products. There are no nearby surface water bodies that could be affected by hazmat release at this site. There is a nearby drainage that could transport materials off-site. There is a minor chance that soluble hazmat from burned refuse could release into the soil and to nearby areas.

Risk Assessment: Threat to life

Probability of Damage or loss: Likely. This determination is due to increased potential for Forest visitors to explore the mine site due to a loss of vegetation.

Magnitude of Consequences: Moderate: Visitors could experience injury while exploring the mine site by falling in the pit.

Risk Level: **High**

Risk Assessment: Threats to life and Water Quality

Probability of Damage or loss: Likely. If the debris are not contained or removed from the site, contamination of soils could occur as a result of the first major storm events in the fire area.

Magnitude of Consequence: Moderate. The regional boards and the water quality objectives established to protect state waters from pollutants or waste disposal must be followed. Forest workers and visitors may be exposed to hazardous chemicals.

Risk Level: **High**

Mammoth Pool Reservoir and hydropower infrastructure

Similar to last year's Aspen Fire the Southern California Edison (SCE) hydropower facilities in the San Joaquin River were identified as a value at risk from the French Fire. The facilities include Mammoth Pool Dam, the Intake at Mammoth Pool Dam, Mammoth Pool Power House, Dam 6 Lake, Intake to Powerhouse 3, and Powerhouse 3.

SCE hydroelectric power facilities were evaluated through direct communication with SCE staff and field surveys. SCE staff expressed concern for post-fire impacts due to floatable debris, turbid water and landslides/debris flows (Don Dukleth, Tim Frazer, and Cy Lamarsny, pers comm.follow up w/ Don Dukleth, 8/12/2014 and 8/14/2014). Floatable debris can impact Powerhouse 3 by clogging the vertical grates at the intake at Dam 6 Lake. The intake grates run vertically from the full pool elevation to the bottom of the reservoir. If the intake gets clogged, the intake grids can collapse. This occurred in 1996, following the 1994 Big Creek Fire (T Frazer, pers comm). However, if this collapse occurred during the 1997 flood, that was a major flood, which is beyond the scope of any potential mitigations that would be implemented under BAER. Further discussion with SCE is needed to determine if that flood was related to the grate collapse. Floatable debris is not a concern for the Mammoth Pool powerhouse, because the intake is below the water surface, near the bottom of the reservoir. Floatable debris will increase due to the amount of burned forest vegetation adjacent to stream channels. The Team found that 227 (88%) miles of stream channels in the burned area flow into the San Joaquin River below Mammoth Pool Reservoir. 30 miles (12%) of the stream channels in the burned area flow into Mammoth Pool Reservoir. Most of the debris of concern will come from forested ground, while a small component will come from shrub-type cover. A 5 year storm event, one that has a 20 percent chance of

occurring each year, will deliver this debris to the reservoirs. SCE will need to monitor the weather and be ready to adjust their operations to respond to an influx in debris. They could also install additional booms to manage this debris. There is no emergency regarding the threat of floatable debris to the Number 3 Powerhouse.

Risk Assessment:

The probability of damage or loss: Possible

Magnitude of consequences: Moderate

Risk Level: **intermediate**

Sediment and turbid water is a threat to the SCE hydropower facilities. Turbid water can impact and clog the cooling system, which can cause overheating of the turbines. When this occurs, SCE shuts down the turbines and waits for the turbidity to drop to an acceptable level. Potential impacts to SCE facilities from a landslide/debris flow include a loss of reservoir capacity and damage to the Mammoth Pool Dam. Debris flows could also result in turbidity at levels high enough to cause the powerhouses to shut down temporarily (see the Geology report for more detail on landslide/debris flow risk).

Debris flows are also capable of inflicting significant damage to hydroelectric facilities. Sediment from surface erosion within the fire area and debris flows could introduce significant amounts of sediment into the San Joaquin River. This could have a detrimental effect to hydroelectric facilities using this water for power generation. There is a threat that sediment could fill in the reservoirs at the Mammoth Pool Dam and the Dam 6 Lake. Soil erosion modeling show 3.52 acre feet could potentially be delivered into Mammoth Pool from Lower Chiquito Creek & Mammoth Pool Reservoir-San Joaquin River Watersheds. Additionally soil erosion modeling show 17.91 acre feet could potentially be delivered into Dam Six Lake. However, based on dominate soil types, approximately one third of this material will be silt and clay sized material, which will be held in suspension and flushed through the system, leaving two thirds of the volume deposited in the reservoirs. Also, some small percentage of this volume may get stored in the channels upstream of the reservoirs. Mammoth Pool reservoir has a capacity of 123,000 acre feet. The capacity of Dam 6 Lake is 992 acre feet (T. Frazer, personal communication). According to the values of the soil erosion modeling; if two thirds of the material is deposited in the reservoirs, Mammoth Pool would receive 2.35 acre feet and Dam Six Lake would get 11.94 acre feet. This would reduce their capacity by .0019% in Mammoth Pool and 1.2% Dam Six Lake respectively. There is no emergency regarding reservoir capacity at Mammoth Pool and Dam 6 Lake.

Risk Assessment:

Probability of damage or loss: Possible

Magnitude of Consequences: Minor

Risk Level: **Low**

Threats to Ecosystem Stability/Soil Productivity

During field surveys, soil conditions were described, post-fire resource damage conditions were noted, and threats to soil productivity were determined. The magnitude and longevity of fire-related soil effects may be generally inferred from the soil burn severity rating. A low rating indicates short-term soil effects; these areas are generally not considered significant sediment source areas, and do not constitute a potential fire-caused emergency. A high rating indicates rather severe effects and substantial increases in off-site erosion.

The overall soil burn severity in the French Fire is 10% unburned/very low, 32% low, 48% moderate, and 10% high. Soils with low burn severity still have good surface structure, contain intact fine roots and organic matter, and should recover in the short-term once revegetation begins and the soil surface regains cover. The moderate to high classes have evidence of severe soil heating in patches; these areas have a significant loss of organic soil cover, and surficial char with partial destruction of structure, porosity, and roots. The most severely burned areas occurred on steep slopes at higher elevations and mostly under conifer forests or dense oak & riparian vegetation where pre-fire vegetation density and fuels accumulations were higher. Table 2 below display erosion rates throughout the fire area.

Table 2: Soil erosion rates

French Fire - ERMiT								
Area	Unburned		2-Year Event		5-Year Event		10-Year Event	
	Tons/Acre	Tons	Tons/Acre	Tons	Tons/Acre	Tons	Tons/Acre	Tons
French Fire Area	1.04	13,227.01	2.60	25,968.90	6.49	80,685.46	9.58	120,846.02
Lower Chiquito Creek	1.27	2,270.61	2.98	4,182.17	7.00	12,084.58	9.78	17,024.66
Mammoth Pool Reservoir-San Joaquin River	1.10	69.83	2.14	89.44	6.28	357.43	9.41	551.37
Rock Creek-San Joaquin River	1.06	10,886.55	2.60	21,697.25	6.62	68,243.45	9.74	103,269.93

French Fire - ERMiT High Soil Burn Severity								
Area	Unburned		2-Year Event		5-Year Event		10-Year Event	
	Tons/Acre	Tons	Tons/Acre	Tons	Tons/Acre	Tons	Tons/Acre	Tons
French Fire Area	1.08	1,766.43	4.18	6,131.05	8.55	13,252.18	12.23	17,917.46
Lower Chiquito Creek	1.36	353.19	4.78	1,218.96	9.38	2,621.09	12.68	3,597.18
Mammoth Pool Reservoir-San Joaquin River	1.18	0.72	4.35	2.66	9.67	5.92	13.56	8.30
Rock Creek-San Joaquin River	1.09	1,412.51	4.17	4,909.42	8.64	10,635.15	12.28	14,311.96

Risk Assessment:

Probability of damage or loss: Likely

Magnitude of Consequences: Moderate

Risk Level: **High**

The Team recognizes that accelerated erosion is likely to occur in the high and moderate burn severity areas. Due to slope and rock outcrop only 250 acres are suitable for hillslope treatment within the fire. In addition, the treatable acres are scattered throughout the fire area causing inefficiency in implementation. The Team believes that hill slope treatment would not be in large enough scope and scale to mitigate the risk soil erosion at an appreciable rate.

Threats to Vegetation Recovery/Ecological Integrity- Invasive plants

The botanical values at risk in the French Fire are threats to the ecological integrity of native vegetation communities from invasive plants. Known populations of medusahead (*Elymus caput-medusae*), cheatgrass (*Bromus tectorum*), and bull thistle (*Cirsium vulgare*) occurred adjacent to and within the burned area prior to the fire. Field surveys were completed within the burned area at known

infestations, contingency lines, fire suppression point locations (e.g., drop points, safety zones), utility corridors, and major travel routes to and within the fire.

The fire burned through the known infestation of medusahead (~19 acres) at the San Joaquin mine. Most plants were seeding. Fire severity at this location was primarily low resulting in a mosaic of fully consumed to partially or unconsumed vegetation and areas of bare soil adjacent to seeding medusahead plants. The infestation intersects roads, the SCE transmission line, dozer and hand line, and old mining areas. Helispot H1 located 0.4 miles south of the fire was used during suppression and SCE was using the site post-fire to stage replacement poles for damaged power lines. The poles were laid on the ground in an established infestation of seeding medusahead that had recently been partially cleared. There is a risk that seeds will be transported on the poles from the helispot to various locations on the powerline. There is 0.4 acres of medusahead infestation at the helispot and along the access road.

Probability of damage to landscape ecological structure and function is ***likely*** (50-90%), as existing infestations of invasive species within and in close proximity to the fire are anticipated to expand in the post-fire environment. New infestations will colonize areas of ground disturbance and burned areas where reduced canopy cover and open ground will facilitate invasive species establishment and proliferation within the next year. Medusahead and other weeds were in a stage of seed dispersal at the time of the incident. Vehicle travel and fire line construction through infestations at this stage have the highest likelihood of enhancing seed dispersal along travel routes, fire lines, and within the burned area.

With the exception of the known medusahead sites at the San Joaquin mine and the helispot, most of the French Fire is free of invasive plants or has only minor occurrences of low impact non-native plant species. The potential for weed spread will have significant impacts on that critical value. Existing infestations that experienced low to moderate burn severity will expand due to seed bank release and enhanced post-fire resource availability (e.g., light, nutrients). Long-term negative effects to plant community heterogeneity, fire frequency, landscape ecological integrity, wildlife habitat quality, and watershed health are anticipated to increase within the post-fire environment if invasive plants are allowed to expand. The initial magnitude of invasive plant species expansion and isolated population establishment is ***moderate***, and would be expected to increase with each growing season without survey and treatment.

In the French Fire and adjacent locations used to support fire suppression efforts, invasive plant species pose a ***high risk*** to landscape ecological integrity in the first year after the fire. This BAER emergency can be mitigated by surveying and treating known populations to limit fire-induced expansion, as well as surveying and treating new infestations to reduce spread to uninfested areas.

Risk Assessment:

Probability of damage or loss: Likely

Magnitude of Consequences: Moderate

Risk Level: **High**

Threats to Cultural Resources

SNF Heritage data identified 97 cultural resource sites in the French Fire area. All of the sites, except one are potentially eligible for listing on the National Register of Historic Places. Of these, 24 sites (25%) were monitored by the BAER team archaeologist to assess the potential for adverse effects of the fire. ***None*** of the cultural resource sites within the burned area were determined to be potentially at risk from the French Fire and subsequent watershed events involving erosion and increased water movement, or exposure of sensitive archaeological materials to the public.

The implementation of the proposed BAER treatments will have no effect to cultural resources and will be in compliance with the provisions of the 2013 Programmatic Agreement with California State Historic Preservation Office (SHPO), as described in the Cultural Resources Specialist Report.

B. Emergency Treatment Objectives:

Provide for Public Safety and information – Ensure communication of potential post fire values at risk has occurred. Remove woody debris from Fish Creek Campgound to facilitate passage of flood flows.

Roads - To stabilize the transportation roads system and prevent further damage resulting from:

a. Erosion and other effects of storm water runoff as a result of fire damage on adjacent lands.
b. Direct traffic on the roads.
c. Public Safety Hazards as a result of facilities or structures damaged or destroyed.

Wisseman Mine – To contain potentially hazardous materials and protect the public from adits and open shafts.

French Trail – Storm proof the trail and close it to the public until properly stabilized.

Ecological integrity (Invasive weeds) - The objective of invasive non-native plant early detection surveys and rapid response treatment in the French Fire is to reduce the potential for existing population expansion and new population establishment of invasive weeds.

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

Land **90** % Channel **100** % Roads/Trails **90** % Protection/Safety **100** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	85	100	100
Channel	100	100	100
Roads/Trails	80	100	100
Protection/Safety	100	100	100

E. Cost of No-Action (Including Loss): See Attachment A

F. Cost of Selected Alternative (Including Loss): See Attachment A

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Todd Ellsworth

Email: tellsworth@fs.fed.us Phone: 760-937-2033 FAX:

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:

Noxious weed detection and eradication

Description of Treatment: Priority areas will be surveyed in spring or early summer 2015 when plants are easily detectable (bolting or flowering). There are approximately 925 acres to be surveyed at known infestations and areas at high risk of new infestation. There is an additional 25 miles of linear features to be surveyed (roads, trails, dozer and hand line, utility corridors). Infestations will be mapped with a GPS, photographed, and flagged with noxious weed tape. Where feasible, new or isolated infestations will be treated by hand or mechanically treated, using a string trimmer during the same visit as surveys. Hand pulling consists of pulling the plant up by the roots and bagging for disposal, if seed heads are present. Hand treatment should only be attempted on small populations (e.g. treatment will take ~1 hour or less for two people). Mechanical treatment would be conducted for larger infestations and is most practical when an infestation has relatively high cover. Mechanical treatment consists of string-trimming plants at the "boot stage" (developing seed head is still in the leaf sheath and not yet flowering).

Surveys and treatments will be conducted by a two-person crew, with the goal of timing the visits appropriately so that when possible only one visit per site is needed. However, depending on phenology, infestation size, and treatment strategy, some infestations may be visited more than once. Large infestations will likely be visited twice or more- once for survey and mapping and additional visits as needed for dedicated treatment. Emergency surveys and treatments will be conducted for one year only per BAER policy. Survey and treatment in subsequent years may be accomplished through a combination of forest service program funding, coordination with Southern California Edison, and/or WMA/volunteer groups. See Appendix 1 for a detailed breakdown of costs.

Channel Treatments:

Fish Creek Campgound:

Description of Treatment: Remove large woody debris from the channel in the Fish Creek Campgound. This will allow safe passage of the anticipated increase in flood flood and debris offering added protect to built assess and visitors in the campground.

The National Weather Service (NWS) will contact the Sierra National Forest Dispatch to alert them to a flash flood watch or warning in the French Fire area. Forest employees should inform campground visitors to remain deligent and possibly to move to higher ground if this occurs.

Roads and Trail Treatments:

Road Treatments: See Appendix 2 for a detailed description of road treatments and costs.

French Trail

Description of Treatment - Place trail closure signs and notice of falling tree hazards at the trail head on FS 81 and at 7S20. The French is in need of erosion stabilization efforts over approximately 2 miles of the total 4.2 miles burned. The proposed stabilization and storm proofing treatments will repair damaged drainage features (rolling dips, drains, etc.) and construct new drainage features. This work will provide water flow off of the trail and prevent the trail from becoming a negative erosion impact to surrounding vegetation recovery and overall soil productivity and hydrologic function.

Remove bridge over Shakeflat Creek. This bridge is at risk of failure due to high peak flows and debris knocking the bridge off its foundation.

Protection/Safety Treatments:

Wisseman Mine Burnt Trailer – Hazmat; one open adit and one open shaft site protection

Description of Treatment – contain potential asbestos material from trailer on site by installing straw wattling around trailer and cover with visqueen plastic; Construct a temporary fence around adit and shaft and install warning signs on the road before entering the site.

Letter

Description of Treatment: Develop a letter to Southern California Edison discussing the potential risk to infrastructure from flooding debris.

Warning Signs

Description of Treatment: Rock fall, debris flow and flash flood warning signs will be installed within the fire area to warn the public of potential hazards in the area.

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.)

No monitoring is being proposed.

Part VI – Emergency Stabilization Treatments and Source of Funds Initial Request

			NFS Lands				Other Lands				All
Line Items	Units	Unit Cost	# of Units	BAER $	Other $		# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments											
NX Weed Detect/Rem	mi	1004	25	$26,302	$0			$0		$0	$26,302
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Land Treatments				$26,302	$0			$0		$0	$26,302
B. Channel Treatments											
Fish Creek Camp	ea	1500	2	$3,000	$0			$0		$0	$3,000
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Channel Treat				$3,000	$0			$0		$0	$3,000
C. Road and Trails											
French Trail Storm Proofing	mi	16,650	1	$16,650	$0			$0		$0	$16,650
French Trail Bridge Removal	ea	2000	1	$2,000	$0			$0		$0	$2,000
Implementation Roads	day	350	20	$7,000							$7,000
Roads	EA	368,938	1	$372,438	$0			$0		$0	$372,438
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Road & Trails				$398,088	$0			$0		$0	$398,088
D. Protection/Safety											
Wisseman Mine	ea	4000	1	$4,000	$0			$0		$0	$4,000
Hazard/Closure Signs	ea	333	12	$3,996	$0			$0		$0	$3,996
Implementation Lead	day	450	20	$9,000	$0			$0		$0	$9,000
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Structures				$16,996	$0			$0		$0	$16,996
E. BAER Evaluation	ea	63000	1	$63,000							
				---				$0		$0	$0
Insert new items above this line!				---	$0			$0		$0	$0
Subtotal Evaluation				---	$0			$0		$0	$0
F. Monitoring											
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$0	$0			$0		$0	$0
G. Totals				$444,386	$0			**$0**		**$0**	**$444,386**
Previously approved											
Total for this request				**$444,386**							

PART VII - APPROVALS

1. Forest Supervisor (signature) — Date: 8/22/14

2. Regional Forester (signature) — Date: 9/3/14

Appendix 1: Survey And Eradicate Noxious And Invasive Weeds

Personnel	Daily Rate	# Days (8 hrs/day)	Total
GS-11 botanist (1) (hiring, training, supervision, reporting)	$357.00	20	$7,140.00
GS-5 temporary botanist (2 people for 6 weeks) (surveys and treatments)	$132.69	60	$7,961.40
GS-4 temporary technician (4 people for 2 weeks at Overtime- $118.65*1.5) (mechanical treatments only)	$177.98	40	$7,119.20
Subtotal			**$22,220.60**
Fleet/Supplies/Herbicide	**Cost**	**Miles or Unit**	**Total**
Mileage (45 miles roundtrip from North Fork to Rock Creek for 26 days + 95 miles RT from North Fork to Mammoth Pool Reservoir for 6 days)	$0.54/mile	1740 miles	$939.60
FOR	$242/month	1 month	$242.00
String Trimmers (2)	$600.00	2	$1,200.00
Misc supplies: hard hats, safety vests, batteries, gloves, trash bags, flagging, fuel and oil for string trimmers	$500.00	1	$500.00
Herbicide contract (2 visits)	$1,200.00	1	$1,200.00
Subtotal			**$4,081.60**
Total Cost			**$26,302.20**

Appendix 2 - Proposed Treatment Cost by Road for French Fire

Roads With Proposed Treatment			
Level 4 Road			
Road	Risk	Treatments	Estimated Cost
4S81	Very High	Culvert and roadside ditch cleaning, riprap drainage inlets/outlets, culvert modifications, fill slope riprap armor, armored drainage ditch, roadside berm, debris racks, rock fall and other warning signs, storm inspection and response	$135,015.00
Level 2 Roads			
Roads With Proposed Treatment			
Road	**Risk**	**Treatments**	**Estimated Cost**
4S81N	High	Restore drainage function	$300.00
4S81P	High	Restore drainage function	$900.00
4S81X	High	Culvert cleaning, culvert modification, out sloping, reestablish rolling dips, culvert removal @ MP 1.70	$11,432.50
6S12X	High	Culvert inlet cleaning, culvert removal, rolling dips	$11,400.00
6S25	High	Culvert inlet cleaning, culvert modifications, riprap culvert outlets, replace missing drop inlet grate	$13,450.00
6S25X	High	Culvert removal, armored rolling dips, rolling dips, out slope road, culvert modifications	$37,760.00
7S07	High	Replace existing gate, replace drop inlet covers, culvert cleaning (10 qty.), culvert modifications (4 qty.), repair culvert	$11,580.00
7S15Y	High	Culvert inlet cleaning, culvert modifications, culvert removal, rolling dips, debris rack, replace damaged drop inlet cover	$24,800.00
7S35	High	Culvert inlet cleaning, culvert modifications, riprap culvert outlets	$18,650.00
7S40	High	Replace damaged log culverts with 24 inch CMP culverts- MP 0.165, 0.71, 1.20,1.67, and armored low-water crossing-MP 2.20. Reestablish dips for drainage control.	$31,490.00
7S40F	High	Remove the existing 18" culvert and replace it with new 36 inch culvert in main drainage. MP 0.12	$4,810.00
7S44B	High	Restore drainage function by mile	$4,500.00
7S47	High	Culvert inlet cleaning, culvert removal, rolling dips, culvert modifications, riprap drainage ditch	$15,600.00
7S47Y	High	Restore drainage function by mile	$2,250.00
Storm Inspection and Response (6 days)			$21,000.00
Road Closure Gates (5 total)			$27,500.00
Total			**$372,437.50**