

USDA-FOREST SERVICE

FS-2500-8

Date of Report: **August 11, 2010****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 DESCRIPTION

- A. Fire Name: Bull Incident Fire B. Fire Number: CA-SQF-002701
C. State: CA D. County: Kern and Tulare County
E. Region: 5 F. Forest: Sequoia National Forest
G. District: Kern River Ranger District H. Fire Incident Job Code: P5FM8F
I. Date Fire Started: July 26, 2010 J. Date Fire Contained: August 10, 2010
K. Suppression Cost: Approximately \$11,200,000 as of August 8, 2010.
L. Fire Suppression Damages Repaired with Suppression Funds
 1. Fireline waterbarred (miles): 6.5 miles of Dozerline
 2. Fireline seeded (miles): None
 3. Other (identify): None
M. Watershed Number: HUC 6 Watersheds: 180300010603 Kern River/Corral Creek, 180300010604 Kern River/Caldwell Creek, 180300010605 Bull Run Creek
N. Total Acres Burned: NFS Acres (15,830) Other Federal () State () Private (618)
O. Vegetation Types: Annual Grassland, California Buckwheat Scrub, Ceanothus Mixed-Chaparral, Gray Pine Savanna, Live Oak Woodland, Black Oak Forest
P. Dominant Soils:
Dominant Soil Series within the Bull Fire

Map Unit #	Name	Acres
420	Rock Outcrop-Cineba Complex	7,732
300	Xerofluvents-Xerorthents-Riverwash	2,522
205	Chular-Rock Outcrop Complex	2,174
202	Cineba-Rock Outcrop Complex	1,790
400	Rock Outcrop	789

Q. Geologic Types: Igneous Intrusive rocks, Surficial Alluvial Deposits, and Metamorphic rocks (Ross, 1995). The Igneous Intrusive rocks include the Granite of Kern River (Kkr), Granodiorite of Castle Rock (Kcr), Granite of Cannel Creek (Kcc), and the Granite of Baker Point (Kbp). The metamorphic rocks include the Fairview Metasedimentary Rocks and Metavolcanic Belt (Kf) and the Long Canyon Metasedimentary Belt (JTrlc). The Long Canyon Metasedimentary Belt consists of siliceous to pelitic schist, quartzite, marble, and calc-hornfels.

R. Miles of Stream Channels by Order or Class: Perennial Channels = 16.98 miles, Intermittent Channels = 77.90 miles, Artificial Channels = 5.15 miles

S. Transportation System

Trails: 10.1 miles USFS Trails (Whiskey Flat #32E35 – 6.8, Cannell #33E32 – 3.5)

Roads: 17.7 miles SCE Roads, 8.5 miles of County Roads (Mountain 99)

PART III - WATERSHED CONDITION

A. Burn Severity by total and FS (acres):

Soil Burn Severity (Acres)	Acres	Percent
High	161	1%
Moderate	9,558	58%
Low/Unburned	6,729	41%
Total	16,448	

B. Hydrophobic Soils: approximately – 5,000 acres

C. Soil Erosion Hazard Rating (acres):

Low	790
Moderate	3115
High	376
Very High	12,167

D. Erosion Potential:

Soil Burn Severity	Tons Per Acre – adjusted by Percent Rock Outcrop in each map unit
Unburned and Very Low (includes rock outcrop)	0-.8
Low	1.0 to 2.5
Moderate	1.4 to 3.75
High	2.6 to 3.0

E. Sediment Potential:

Summary of Soil Burn Severity and Sediment Yield to HUC 7 Watersheds

Name of HUC7 Watershed	Erosion (tons/acre)	Acres	Sediment Delivery (tons/year)	Bank Erosion (tons/year)
Bull Run Creek Basin	1.3	4,451	289	961
Caldwell Creek Basin	1	3	0	79
Cane Springs	2.3	4	2	n/a
Cannell Basin Creek	1.4	949	199	4,128
Cannell Meadow	1.7	831	71	n/a
Chico Canyon	1.9	263	125	4,963
Lower Bull Run	1.3	996	65	7,825
Lower Cannell Canyon	1.0	3	0	n/a
Lower Corral Creek	0.9	904	203	231
Mid Kern River Basin	1.4	1,448	101	32,589
Stormy Canyon	2.5	2,942	1,839	5,522
Tillie Creek Basin	2.1	260	27	119
Tributary to Cannell	1.1	1,675	92	330
Unnamed - A	1.7	104	44	1,810
Unnamed - B	1.2	10	1	106
Unnamed - C	1.1	290	48	1,735
Unnamed - M	1.1	1,172	193	n/a
Unnamed - N	1.2	104	31	2,458
Unnamed - P	1.6	32	13	2,958
	Average	Total Acres	Total	Total
	1.46	16,442	3,345	65,814

F. Debris Flow Potential: Debris flow potential was determined to be low in the fire area because a small percentage of the fire has high burn severity and soils are well armored with rocks protecting the soil.

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 3
- B. Design Chance of Success, (percent): 90%
- C. Equivalent Design Recurrence Interval, (years): 2
- D. Design Storm Duration, (hours): 6
- E. Design Storm Magnitude, (inches): 1.6-2.8
- F. Design Flow, (cubic feet / second/ square mile): 4.0

G. Estimated Reduction in Infiltration, (percent):	<u>10%</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>5.66</u>

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Bull Fire started on July 26, 2010 and is approximately 16,448 acres in size. The fire includes burnt areas within Bull Run Creek and Cannell Creek to an unnamed drainage west of Corral Creek on the west side of the Kern River and Corral Creek on the east side of the Kern River. The Bull Fire burned moderately steep to very steep watershed along the lower Kern River, north of Kernville, CA. The watersheds are characterized by steep, bedrock dominated drainages and with abundant rock outcrop formations. Soils are fairly well-structured, somewhat compact and have an associated bedrock and large boulder component that slows erosion. The climate is arid overall and precipitation in the fire area is moderate, averaging 9 inches per year at Kernville, to 20 or more in the upper elevations and occurs mostly during the winter months with the exception of summer convective storms when the potential for intense and localized rainfall can occur. Vegetation consists of pine, oak, various upland shrub species found on the slopes and willow, cottonwood, laurel, grasses and other riparian species found along relatively narrow stream corridors. The fire burn severity was mostly moderate and low overall with a few areas where high burn severity occurred.

It is anticipated that watershed response will be moderately increased as a result of fire, particularly the first year post-fire that could negatively affect values at risk such as property, life and infrastructure, such as well-established recreation trails which are the focus of this report.

Summary of Watershed Response

Hydrologic Response: The fire was divided into sub-watersheds with "pourpoints" established at the bottom of burned watersheds, or where values at risk were located. The pourpoints are located within the burn to 5 miles downstream of the burn depending on where the values at risk are located. In most cases the pourpoints are located at the bottom of watersheds as they enter the North Fork Kern River. Watershed runoff response is referenced to these points.

Hydrologic design factors used to analyze the effects of the Bull Fire considered the vegetative recovery period to be 3 years; treatment chance of success as 90%. Storm recurrence interval of 2 years and 6-hours using NOAA Isopluvial maps for 2-year 6-hour precipitation yielded a design storm magnitude of 1.6 to 1.8 inches of rainfall. Estimated reduction in infiltration was based on the percentage of hydrophobic soil in the burn area. Pre-fire design flow was estimated at 4.0 cubic feet per second per square mile and post-fire design flow was estimated at 5.66 cubic feet per second per square mile. These values vary by watershed analysis and are described in detail along with the analysis method in the following section.

Stream bank erosion for the stream channels in the fire area were evaluated for increased bank erosion. Actual pre-fire erosion rates from Bull Run, Cannell, and Salmon Creek Watersheds have been studied from November of 2007 to present to determine natural background erosion rates. Measured background rates range from 0.05 to 0.09 tons/foot of streambank. In order to predict a change from pre-fire to post-fire stream bank erosion rates the same sites were analyzed assuming no surface vegetative protection using the BANCS Model. Vegetation protection was reduced in the analysis to closer represent post-fire conditions. This analysis post-fire yielded values that ranged from 0.057 to 0.25 tons/year/foot which is roughly a 1.3 to 5 times increase in stream bank erosion. Increased sediment has a low potential to effect water quality. Table 7 in the Hydrology Report (Bull Project File) provides the results of the stream bank erosion analysis.

Erosion Response: Soils within the Bull Fire perimeter are formed from granitic, metasedimentary and metavolcanic rock. Colluvial and alluvial processes are active on the Kern River and its tributaries (Stormy, Dark, Chico, and Bull Run Creek) which have created large fairly stable terraces of deep, rocky surfaces where

deposition and removal of soil material is common. Other soils within the burned area are shallow with very steep slopes ranging from 50-75% and very high erosion hazard ratings even when unburned (See Soil Specialist Report, Bull Incident BAER Assessment Project File). Moderately deep soils can be found on more gentle slopes in the Riverkern, Headquarters, Hospital Flat, and Corral Creek areas. Rock outcrops comprise the largest single component (7,732 acres) of the Bull Fire and as a result the post-fire change and potential for accelerated erosion is greatly reduced. The second largest soil component (2,522 acres) is the Xerofluvents-Xerorthents-Riverwash which is a fairly stable landform that responds more to flood flows.

Soil burn severity for the Bull Fire includes 161 acres of high soil burn severity, 9,558 acres of moderate burn severity, 5,491 acres of low burn severity, and 1,238 acres of very low or unburned. Soil burn severity can be linked to the type of vegetation in the area and the fire residence time.

Geologic Response: The geologic hazard assessment identified the potential for rock falls along Mountain 99 as an emergency. Rock fall could occur along the road at rock fall hazard zones 1 and 2 (See Geology Specialist Report Map). Rocks could land on the road way and be a hazard to vehicles on the road. In addition, vehicles parking in these zones are at risk of being hit from rocks rolling off the steep slope above the road.

The geologic hazard assessment identified the potential for flooding at the Kern River Golden Trout Resort. The potential risk for flooding is intermediate and not an emergency.

Values at Risk

The following values were identified during the initial phase of the Bull Incident BAER assessment process as “at risk” from the effects of the fire including increased runoff and debris flows, rock and debris fall, erosion, and sedimentation.

Life: The steep rocky nature of the burned environment creates potential hazards to recreational users and residences traveling the Mountain 99. A threat to life was also identified at the site of the burned bridge on a road maintained by SCE, north of Hospital Flat. Ground and aerial surveys were conducted at areas where the recreating public and users of the forest may be at risk from falling rock from steep burned slopes devoid of vegetation. It is important to note that recreational users and residences are normally at risk from falling rock, swift river currents, and the changing river environment associated with rain, snow, and drought conditions. While the potential for debris flows and flooding in the communities of Kernville and Riverkern has not been changed as a result of fire, the burn has exacerbated the rock fall hazards by removing vegetation, which once held rocks and boulders in place. Forest visitors and residents associated with the communities of Kernville and Riverkern, may be unaware of the fire effects. Hazardous materials (ex. asbestos, fiberglass, burned pvc pipe) were found in the fire area and are easily accessible by Forest users. Also, two mine adits were exposed and have increased access due to removed vegetation and are now considered a hazard to Forest visitors.

Property: Increased runoff, hillslope erosion, and sediment bulking of streams may increase the potential for plugging, flooding, diversion and overtopping of existing drainage structures along SCE roads within the fire area. The probability of damage or loss varies across the burned area. An emergency determination for threat to property (infrastructure) was made on road 24S21, road adjacent to Corral Creek, road access to siphon crossing Cannel Creek, and forebay road due to expected increased runoff and sediment bulking in drainages with culverts of insufficient design capacity. The risk to infrastructure comes from an assessment that there is a high probability for plugging of drainages and overtopping of roads during the design storm which if not controlled could cause significant damage. If not treated, erosion estimate from roads in the burn is 500 tons.

With the burned condition of the slopes adjacent to the certain sections of the trails, storm runoff is likely to increase and concentrate onto the trails. Considering the existing conditions found on the trails surveyed as described in this report, moderate to possibly severe trail damage and some off-trail erosion/sediment delivery to channels is likely to occur along identified sections of the trails with vulnerable conditions (see Trail Assessment/Treatment maps). Trail incision and complete loss of trail tread could occur, therefore resulting in loss of trail infrastructure possibly leading to significant repairs and costs to restore sections of trail. Loss of

water control will lead to off-trail slope erosion and gully formation. Once active gullies are developed, gullies will continue to erode during each storm event and contribute to downstream sedimentation and trail instability.

Water Quality and Quantity: The most noticeable effects on water quality will be increased sediment and ash from the burned area into the North Fork Kern River (drinking water source for Kernville) and Lake Isabella Reservoir and other waterbodies in and downstream of the fire area. During storm events this will increase turbidity and contribute to pool filling. Increased nitrogen may occur during the first year after the fire (see Hydrology Specialist Report, BAER Assessment Project File). Nitrogen levels to downstream water reservoirs are non-significant due to a small percentage of the total watershed burned (referring to the entire North Fork Kern River watershed).

Most precipitation in the burn area comes predominately in the form of summer thunderstorms occurring between July and September, with rarer occurrences into October. Winter rain and snow does occur between the months of November and April; events are often gentle in nature and do not often result in flooding. Occasionally the area is subject to a rain-on-snow event, resulting in extensive flooding. This is not however, an annual event. The last event of this nature occurred in January 1997. The climate is characterized by cool, dry winters followed by hot, dry summers. Stream channels in the burn area have the potential to flash flood. With chaparral/grass environments, such as with the Bull Fire, the post-fire watershed threat should be reduced measurably after two to three years with favorable precipitation.

Threats to Soil Productivity: There is no emergency to soil productivity due to fire-adapted ecosystem and lack of productive timber stands.

Threats to Cultural Resource: Any unknown heritage resource, or those which have not been evaluated as to their significance, would be classified as Class II Heritage Resource Sites. Manual direction states that all Class II sites be afforded the same consideration and protection as Class I sites (which have been evaluated as significant) until that evaluation takes place (FSM 2361).

Primary concerns about damage to significant heritage resources centers on ground disturbance directly impacting known and unknown heritage resources, the potential to bury surface and subsurface heritage resources to prohibit discovery and the possibility of soil movement which would change the context of the remains which would be vital to any scientific analysis or interpretation value that the resource may have. The burn may have an indirect impact of increasing the visibility of the site location to make them more susceptible to vandalism. It is assumed the same effects would hold true for any unknown heritage resources within the burn perimeter.

Site 05-13-54-722: This site is located in a moderate burn area east of Mountain 99 in the upper unnamed Canyon north of Hospital Flat along the Edison access road. The site originally consisted of one large pit, several smaller individual pits and some looters pits with piles in front topped with historic artifacts. An access road connects the site east to the Edison road. Another unrecorded portion of the site is located approximately 200' west of the main dump and pits. This consists of one large pit that has been dug into with artifacts scattered throughout the unrecorded portion. These areas are both completely burned with individual artifacts rolling down slope onto the Edison access road.

Site 05-13-54-720: This site is located in a moderate burn area east of Mountain 99 in the upper unnamed Canyon north of Hospital Flat along the Edison access road. The site consists of three concrete footings with lag bolts. This is situated west of a side road leading north to the flume and north of the main Edison access road at a "Y" intersection. Another unrecorded portion of the site or another new site is located approximately 100 - 200' west and south of the road.

Site 05-13-54-710: This site is located in a low burn area east of Mountain 99 in the Corral Creek watershed. The site consisted of 3 structures, trash dumps, tailings, prospect pits and a mix of historic and modern trash around the area. After the fire, several new, unrecorded features were exposed west and south of the current extent of the site. The fire completely burned the historic structures exposing hazardous waste at the site (see Hazardous Material Report, BAER Assessment Project File).

Site 05-13-56-228: This site is located on both sides of Mountain 99 north of Cannell Creek. This was the original location for the Edison Headquarters Construction Camp from the early 1900's for flume construction. There is also a prehistoric site on the west side of Mountain 99 that was not burned. The eastern side of Mountain 99 was burned heavily exposing new and old features that were recorded in the last 2 years. New foundations were found and also 3 hazardous material issues (see HAZMAT report).

Threats to Wildlife: There are no known occurrences of federally listed aquatic or terrestrial wildlife species or Designated or Proposed Critical Habitat within the fire perimeter or immediately downstream from the fire. There is one federally threatened invertebrate, the valley elderberry longhorn beetle, which is known from a single unburned elderberry bush located at the edge of the fire perimeter, in an area with very low flood potential.

There are several Forest Service Region 5 Sensitive Species that may occur in the area and/or have suitable habitat that is affected by the Bull Fire. These include:

- Southwestern pond turtle
- Hardhead fish
- American peregrine falcon
- Kern River slender salamander (and potentially several other salamanders)
- California legless lizard
- Pallid bat
- Townsend's big eared bat
- Western red bat

Other species at risk also occur within the fire perimeter:

- Bald eagle

Aquatics Species: Post-fire impacts to hardhead may include compromised water quality and changes in water chemistry due to ash delivery and sedimentation, changes in aquatic habitat due to filling of pool and streambed/spawning gravel, and flushing of species during periods of high winter streamflows. The numbers of hardhead individuals in the North Fork Kern River population is unknown. They have been compromised from previous fire events and may be close to extirpation in the North Fork Kern River, as surveys in 2006 did not find any.

Treatments proposed for reducing sediment impacts by road and trails and the gated closure of the road to Corral Creek will reduce future potential sediment to North Fork Kern River.

Terrestrial Wildlife: There are minimal to moderate concerns with post-fire effects for most of the terrestrial wildlife species in the Bull Fire area due to the following factors: 1) prevalence of low and moderate soil burn severity within the fire perimeter, 2) most riparian areas are largely intact structurally and are likely to recover relatively quickly and 3) only a small portion (2.5%) of the North Fork Kern River watershed burned. However, emergency conditions exist as a result of post-fire effects:

- A concern about human health and safety due to potential exposure to burned fiberglass structures used as artificial wildlife water sources within the Bull Fire perimeter.

Native Vegetation Recovery: An emergency exists with respect to vegetative recovery as a result of the threat of weed introduction and post-fire spread and potential unauthorized vehicle use. The unknown introduction and dispersal of invasive weeds into areas disturbed by fire suppression and rehabilitation has the potential to establish large and persistent noxious weed populations. It is highly likely that existent noxious weed infestations will increase in the burn area, due to their accelerated growth and reproduction and a release from competition with natives. These weed populations could affect the structure and habitat function of native plant communities within the burn area. In addition, the open vegetation structure of the post-fire landscape is extremely vulnerable to unauthorized vehicle use. Impacts associated with this activity, including soil disturbance, compaction, and weed introduction/spread, further exacerbate the recovery of multiple resources already at risk post-fire. It is expected that most native vegetation will recover if weed invasions and unauthorized vehicle use are minimized.

Rare Plants: There is not an emergency situation for the continued existence of any of the rare plant species known from within the fire area. Based on conditions found in the field survey, and references on the specific fire ecology of each species, these populations face only minor to moderate threats as a result of the Bull Fire.

B. Emergency Treatment Objectives

As noted above, threats to life and property, cultural and natural resources from increased rockfall potential and flooding exist within the fire area. For these reasons the primary treatment objectives are to minimize loss of life and risk to human safety and minimize threats to property. Other treatments are identified to reduce the risk of degradation of significant natural resources including the potential spread of noxious weeds and protection of cultural resource sites.

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

Land 85 % Channel -- % Roads/Trails 80 % Protection/Safety 90 %

C. Probability of Treatment Success

	1	3	5
Land	70	80	100*
Channel	n/a	n/a	n/a
Roads/Trails	70	80	90
Protection/Safety	90	80	90

*It is estimated that there will be full vegetative recovery by year three.

E. Cost of No-Action (Including Loss): See Appendix A: Summary of cost-risk analysis.

F. Cost of Selected Alternative (Including Loss): See Appendix A: Summary of cost-risk analysis.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Marc Stamer

Email: mstamer@fs.fed.us

Phone: 909-382-2828 FAX: 909-866-2867

Core Team Members:

- Alan Gallegos – Geologist
- Carolyn Napper – Soil Scientist
- Jason Jimenez – Soil Scientist
- Chris Stewart – Hydrologist
- Terry Kaplan-Henry – Hydrologist
- Jordan Zylstra – GIS
- Wendy Rannels – GIS (T)
- Dennis Dougherty – Heritage
- Mark Howe – Heritage
- Krissy Day – Botanist
- Fletcher Linton – Botanist
- Kathie Meyer – Wildlife
- Jann Williams – Fisheries
- Greg Napper – Roads Engineer
- Casey Shannon – Trails
- Bob Frenes – Trails
- Public Affairs – Cindy Thill
- Joe Gonzales – Hazardous Material

H. Treatment Narrative

The proposed treatments on National Forest System lands can help to reduce the impacts of the fire from precipitation events, but treatments will not completely mitigate the effects of the fire.

The treatments listed below are those that are considered to be the most effective on National Forest System lands given the local setting including topography and access.

Land Treatments

Invasive Plants: An emergency situation has been determined for the recovery of native vegetation due to threats from invasive noxious weed infestation. The unknowing introduction of invasive noxious weeds into areas disturbed by fire suppression and rehabilitation has the potential to establish persistent noxious weed populations due to their accelerated growth and reproduction and a release from competition with natives. These persistent populations could affect the structure and habitat function of plant communities within the burn area. Forest Service direction is to minimize the establishment of non-native invasive species to prevent unacceptable degradation of the burned area. Consequently, delayed assessment of roads, dozer lines, and drop points is necessary to detect the spread and introduction of noxious weeds in the first year after fire. Assessing the establishment of noxious weeds and treating small outlying populations before they expand, will prevent the noxious weeds from becoming serious threats to the recovery of native plants.

Invasive Plants Treatment

Item	Unit	Unit Cost	# of Units	Cost
GS-11 Botanist	Day	\$485	2	\$970
GS-05 Bio Tech	Day	\$225	10	\$2,250
GS-05 Bio Tech	Day	\$225	10	\$2,250
Mileage	Miles	\$0.43	750	\$323
Lodging	Day	\$80	10	\$800
Lodging	Day	\$80	10	\$800
Per Diem	Day	\$60	10	\$600
Per Diem	Day	\$60	10	\$600
Total Request				\$8,593

Stabilize Hazardous Materials at Whitesides Recreation Residence Cabin: A recreation residence cabin and other associated structures know as Whitesides in the Corral Creek Watershed burned. The cabin and construction materials are now at grade level. The concerns are environmental and human-health issues. Field observations of the site indicate asbestos and lead are present and mixed with other burned material, so there is an emergency affecting air quality and human health.

The treatment to mitigate the emergency is hydromulch application by truck for stabilization to keep asbestos and lead in place with resilient tackifier. Material is temporary stabilized so there wouldn't be a problem unless the materials begin moving off-site or affecting human health. Hydromulch application is a low cost treatment and would stabilize the hazardous materials for up to 18 months. It is recommended that the Forest pursue funding to clean-up the Whitesides site to State and Federal clean-up levels. Also, there is a Federal requirement to post signs warning the public and employees of the presence of asbestos at the site.

Hazardous Materials – Whitesides Recreation Residence Cabin

Item	Unit	Unit Cost	# of Units	Cost
Mobilization (heavy equipment and supplies)	Each	\$1,000	1	\$1,000
Labor (4 person work crew onsite)	Each	\$950	1	\$950
Materials (paper and wood fibers weed free)	Each	\$1,500	1	\$1,500
Tackifier (80 lb. super tack adhesive)	Each	\$350	1	\$350
COR (per one day rate)	Each	\$365	1	\$365
Total Cost				\$4,165

Remove and Stabilize Hazardous Materials at Headquarters: Public safety and human health issues are of concern at the Headquarters area. An archaeological site is accessible to the public in the Cannell Creek Watershed. There are two down power poles containing creosote treated wood, a disturbed concrete foundation exposing asbestos, and an uncapped pipe aboveground (a tripping hazard). The treatments being prescribed are to stabilize hazardous materials destabilized by the fire and monitor the removal of the SCE power poles. The BAER recommendation for the Headquarters site is that there is a human-health hazard requiring emergency treatments.

For additional information please reference the Hazardous Materials report and maps. Site photos and additional documentation are present in the project file.

Hazmat - Historical Powerhouse at Headquarters

Item	Unit	Unit Cost	# of Units	Cost
Removal and disposal of burnt power poles – Responsibility is by SCE crew				
Monitor by Arch GS-5 for half day	Each	150	1	\$150
Seal floor level foundation by Arch GS-5 for half day				
Cap open pipe by contractor	Hour	85	2	\$170
Monitor by Arch GS-5 for half day	Each	150	1	\$150
Total Cost				\$620

Remove Wildlife Drinkers: Human health and safety is at risk of injury due to potential exposure to burnt fiberglass associated with these artificial water sources; it is the BAER Assessment Team's determination that an emergency exists for this condition in the Bull Fire area. The recommended treatment for this emergency is for assessment and removal of fiberglass components of the guzzlers and the spring boxes. To protect the public from being exposed to fiberglass, a "mechanical irritant", this treatment is to assess/remove fiberglass structures that were burned by the Bull Fire. There are 7 known artificial wildlife water sources with fiberglass components within the fire perimeter (two quail guzzlers and 5 spring boxes). An implementation Team Leader will review any existing files, coordinate with necessary personnel and or other individuals to determine where these artificial water sources are, determine proper personal protective equipment to use while removing materials, direct/oversee crews, and ensure proper disposal of materials. Crews will visit each of the sites to 1) determine if the fiberglass component was burned and 2) remove the spring boxes the same day. Larger quail guzzlers will be visited and assessed but, if they are burned and pose a risk to human health and safety, an interim request will need be filed to request funding to remove them. Due to their larger size and remote locations, they cannot be packed out at the time of assessment and will need to be flown out with a helicopter if field assessment deems necessary.

Guzzler/Spring Box Assessment and Fiberglass Removal

Item	Unit	Unit Cost	# of Units	Cost
GS 7 Wildlife Biologist - Implementation Team				
Leader	Day	\$270	8	\$2,160
GS7 Crew Member	Day	\$270	5	\$1,350
GS5 Crew Member	Day	\$200	5	\$1,000
River Crossing (one way) required for assessing the unnamed guzzler on the east side of the North Fork Kern River	Per Trip	\$150	2	\$300
Mileage	Miles	\$100	\$0.50	\$50
PPE, trash bags, landfill fees	Each	\$250	1	\$250
Total Request				\$5,110

Heritage Site Stabilization with Wattles: Straw wattles would be placed on soil surrounding the main archeological feature locations of Site 54-722. This would help prevent the washing away or destruction of these significant resources by rain storms or vandalism at the site. Culvert work at Site 54-720 would decrease the loss of sites downstream by flood events into the upper unnamed canyon, north of Hospital Flat. Semi-monthly monitoring of sites 54-722, 56-228 and 54-710 by qualified heritage professionals will further eliminate damage to sites by looting or human caused activity. If movement of artifacts down slope past the wattles should be detected, then further mitigation measures would be taken to alleviate any effects being caused to this site. Finally, monitoring of hazardous materials work at 56-228 to ensure site integrity is not compromised removing hazardous materials on site.

Heritage Site Stabilization

Item	Unit	Unit Cost	# of Units	Cost
Straw wattles	each = 20'	\$29.00	50	\$1,450
Labor costs (Helitack crew - 5 people)	day	\$1,000	3	\$3,000
Archeology monitor- identify extent of site and monitor implementation	day	\$300	2	\$600
Total Request				\$5,050

Channel Treatments

None recommended.

Road and Trail Treatments

Roads – BAER Assessment Team Engineer evaluated Mountain 99 and unpaved roads within the burn area. Due to the increased watershed response, several areas were identified where plugging of culverts causing loss of water control and increased channeling could occur. Mountain Highway 99 is a county maintained road and the other roads evaluated are non Forest Service roads, maintained by Southern California Edison. Therefore, treatment funds have not been requested. A treatment prescription with cost estimates has been prepared (See Engineering Specialist Report, Bull BAER Project File) and should be provided to Kern/Tulare Counties and SCE. Treatment of these roads is critical, as impacts from the increased watershed response could impact associated infrastructure, road users, cultural and natural resources within the burn area.

Culvert locations and watershed information for Mountain 99

Culvert Location	Pourpoint	Watershed	Watershed Area (sq. miles)	% Watershed Burn	Expected Increase in flows from design flow
	<u>9</u>	<u>9CA Unnamed</u>	<u>1.7</u>	<u>90.5%</u>	<u>2.21x</u>
	<u>11</u>	<u>9C- Mid Kern River Basin</u>	<u>0.63</u>	<u>79.01%</u>	<u>1.66x</u>

		<u>12</u>	<u>9C- Mid Kern River Basin</u>	<u>0.25</u>	<u>88.84%</u>	<u>1.76x</u>
		<u>13</u>	<u>9C- Mid Kern River Basin</u>	<u>0.11</u>	<u>80.64%</u>	<u>1.79x</u>

Trails - Stormproofing Cannell Creek and Whiskey Flat Trails: Water bar treatments will consist of installing both rock lined and earth fill (rolling dip or berm) structures and rock or log grade stabilizers (checks). Rock and soil will be collected from adjacent sources near work sites (abundant rock is available). Logs may be utilized at some sites from burned trees. Rock structures will also be used to control stream flow at trail crossings. Approximately 4.75 miles of trail will need stabilization treatment. Forest force account trail crew will complete the work with oversight from Forest District Staff.

Stormproofing Cannell Creek and Whiskey Flat Trails Treatment Costs

Item	Unit	Unit Cost	# of Units	Cost
Overhead			1	\$4,243
5 person Trail Crew	Payperiod	\$11,698	4	\$46,790
Vehicle			1	\$940
Tools and Supplies, Miscellaneous			1	\$1,803
Monitoring/Maintenance/Review			1	\$2,500
Total Request				\$56,276

Protection/Safety Treatments

Interagency Coordination/Implementation Lead: Interagency coordination with Tulare and Kern Counties (Mountain 99), Southern California Edison (unpaved roads), NRCS (Private Residences, Golden Trout Lodge), California Department of Fish and Game (Hatchery) is recommended. Funding is requested for agency coordination, Implementation team lead, and for the Forest BAER Coordinator to ensure continued coordination with cooperating agencies, prompt implementation, and tracking of BAER treatments. The facilitation may include: phone calls, meetings, and field trips to the affected areas.

Interagency Coordination/Implementation Lead Costs

Item	Unit	Unit Cost	# of Units	Cost
Interagency Coordinator	GS-11	\$370	10	\$3,700
Implementation Team Leader	GS-11	\$370	20	\$7,400
Forest BAER Coordinator	GS-11	\$400	5	\$2,000
Total Request				\$13,100

Public Information Handout - Public information handouts will be developed and provided to developed site concessionaire and patrol units for dissemination to public recreating in the burn area. General message will focus on hazards associated with a burned watershed and to use caution.

Item	Unit	Unit Cost	# of Units	Cost
Informational handout GS-7 Distribute/Post/Inform Public	day	\$256	1	\$256
GS-8 Distribute/Post/Inform Public	day	\$272	1	\$272
GS-5	day	\$128	1	\$128
Mileage - Patrol #1		\$0	100	\$45
Mileage - Patrol #2		\$0	100	\$45
Total Request				\$746

Rock Fall Hazard Signs Along Mountain 99: In coordination with Tulare and Kern Counties, develop and install warning signs for rock fall hazard to the public. Signs should be installed on Mountain 99, warning of possible flooding and rocks on roadway in the burned area. Warning signs should also be installed in dispersed camping and parking areas below steep rocky hillslopes warning of increased rockfall hazard along Mountain 99.

Item	Unit	Unit Cost	# of Units	Cost
Warning Sign Major (Large 4'x8')	each	\$1,250	4	\$5,000
Warning Sign Minor (Small 1'x2')	each	\$200	20	\$4,000
Total Request				\$9,000

Installation of Fence Around Adits - Fencing will be installed around the perimeter of two exposed open mining adits. Fencing will consist of barb wire and t-posts preventing accidental access and deterring the public from entering the hazard. Ten signs will also be installed informing the public of the safety hazard.

Item	Unit	Unit Cost	# of Units	Cost
Barbed wire (1/4 mile) and t-posts	each	\$5,000	1	\$5,000
Warning Signs	each	\$100	10	\$1,000
Total Request				\$6,000

Protection Enforcement of Corral Creek: This treatment will reduce off-road soil and vegetation damage in Corral Creek, until the vegetation along roads recovers. The treatment consists of signage and once-a-week patrols during the use season for enforcement and education.

Protection Enforcement of Corral Creek

Item	Unit	Unit Cost	# of Units	Cost
Patrol Tech. GS-04	Day	\$140	12	\$1,680
Patrol Tech. GS-04	Day	\$140	12	\$1,680
Signs	Each	\$18	80	\$1,400
Vehicle	Mile	\$1	1000	\$640
Total Request				\$5,400

Protection Enforcement of Lower Cannell Meadow Trail: This treatment will reduce off-road soil and vegetation damage along the lower Cannell Meadow Trail, until the vegetation along roads recover. The treatment consists of signage and once-a-week patrols during the use season for enforcement and education.

Protection Enforcement of Lower Cannell Meadow Trail				
Item	Unit	Unit Cost	# of Units	Cost
Patrol Tec. (GS-04) Day		\$140	4	\$560
Patrol Tec. (GS-04) Day		\$140	4	\$560
Signs	Each	\$18	20	\$350
Vehicle	Mile	\$1	200	\$128
Total Request				\$1,598

I. Monitoring Narrative

This monitoring is specifically designed to answer the question; Did BAER treatments provide the needed protection and rehabilitation of the burned area? The effectiveness monitoring efforts identified for the Bull Incident include the following:

Heritage Site Treatment Monitoring

Site 54-722 will have straw wattles placed. This treatment will need to be monitored due to looting potential and erosion of the site because of the lack of soil cover. This will be done semi-monthly to quarterly for one year because of the high use of the area by hunters and recreationalists. Sites 56-228 (Headquarters) and 54-710 (Whitesides) will be monitored along with 54-722 for looting activity and potential for exposure of hazardous materials at site.

Treatment Monitoring Costs

Item	Unit	Unit Cost	# Units	Cost
One GS-7 and One GS-5 Archaeologist	2 Hours	\$75	6	\$450
Direct and Indirect Costs	Each	\$150	1	\$150
Total Costs				\$600

Recommendations

The following are recommendations that may aid in post-fire recovery, but are not prudent as BAER treatments:

- SCE Roads – Not up to Forest Service Safety and design standards – Continue coordination with SCE to improve safety along roads, and/or reduce access for public safety.
- Shooting Area/other hazardous material Sites – Pursue funding (some sites may qualify for CERCLA) to remove hazardous materials.
- Marajuana Grove Sites and Associated hazardous material – Two of the grove sites were cleaned prior to fire, however the status of the other two are unknown, per local LEO.
- Grazing Allotments (4) – Minimum 1 Year Rest, Re-evaluate for following years with IDT.
- Patrol Units/ Fire Crews – Drive roads, clean out culverts/approaches
- Coordinate with SCE in Pole Removal at Headquarters
- Monitoring of Hardhead Minnow in North Fork Kern and Bull Run Creek

- Replace Any Wildlife Drinkers Damaged by Fire
- Volunteer Riparian Planting at Riverkern Beach

This report is an initial funding request based on a rapid assessment. If additional treatment needs are identified through more site specific on the ground investigation in cooperation with interested agencies, and noxious weed detection surveys, interim requests for additional funding will be filed. These funding requests will identify the purpose for each treatment, and specific treatment specifications, locations, and number of each treatment.

Part VI – Emergency Stabilization Treatments and Source of Funds

Click red icons for notes.						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															
Weed detection surveys	ea	\$8,593	1	\$8,593			\$0		\$0	\$8,593					
Stabilize Haz Materials	ea	\$4,165	1	\$4,165			#REF!		#REF!						
Remove/Stabilize HazM	ea	\$620	1	\$620											
Guzz/Spring Box Fiberglass	ea	\$5,110	1	\$5,110											
Heritage Site Stabilization	ea	\$5,050	1	\$5,050											
Subtotal Land Treatments				\$23,538	\$0		#REF!		#REF!	\$8,593					
B. Channel Treatments															
Subtotal Channel Treatments				\$0	\$0		\$0		#REF!	\$0					
C. Road and Trails															
Storm Proof Trails	ea	\$56,276	1	\$56,276											
Subtotal Road & Trails				\$56,276	\$0		\$0		\$0	\$0					
D. Protection/Safety															
Interagency Coord/Impl	ea	\$13,100	1	\$13,100						#REF!					
Public Info Handout	ea	\$746	1	\$746											
Rocfall Hazard Signs	ea	\$9,000	1	\$9,000			#REF!		#REF!						
Adit Protection	ea	\$6,000	1	\$6,000											
Protection Enforcement	ea	\$5,400	1	\$5,400											
Protection Enforcement	ea	\$1,598	1	\$1,598											
Subtotal Protection				\$35,844	\$0		#REF!		#REF!	#REF!					
E. BAER Evaluation															
Assessment team	ea	\$82,188	1	\$82,188	\$0	---		---		\$0					
Subtotal Evaluation				\$82,188	\$0	---	\$0	---	\$0	\$0					
F. Monitoring															
Treatment effectiveness	ea	\$600	1	\$600			\$0		\$0	\$600					
Subtotal Monitoring				\$600	\$0		\$0		\$0	\$600					
G. Totals				\$116,258	\$0		#REF!		#REF!	#REF!					
Previously approved						Comments: Costs for the assessment team have already been spent, and therefore are not									
Total for this request				\$116,258											

1. /s/ Tina J. Terrell 8/17/2010
Forest Supervisor (signature) Date
2. _____
Regional Forester (signature) Date

Appendix

Figure 1: Soil Burn Severity Map

Appendix A: Summary of cost-risk analysis

Fire Name	Bull Incident	
Location	Sequoia NF, Kernville District	
Date	8/7/2010	

SUMMARY	Total Treatment Cost	#REF!
	Expected Benefit of Treatment	#REF!
	Implied Minimum Value (IMV)	#VALUE!

MAP ZONE A	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	No	
	Non-Market: Cultural Values	No	
	Non-Market: Ecological Values	No	
	Market Values: Direct	Yes	\$ 200,000
	Market Values: Loss of Use	Yes	\$ -
	<i>Total Market Resource Value</i>		\$ 200,000
	<i>Proposed Treatment</i>		\$ 56,276
	Reduction in Probability of Loss		0.50
	Expected Benefit of Treatment		\$ 100,000
	Exp B/C Ratio of Treatment for Market Resources Only		1.8
	Implied Minimum Value (IMV) of Protecting Non-Market Resource Values		\$ -

MAP ZONE B	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	No	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	No	
	Market Values: Direct	No	\$ 5,600
	Market Values: Loss of Use	No	\$ -
	<i>Total Market Resource Value</i>		\$ 5,600
	<i>Proposed Treatment</i>		\$ 1,485
	Reduction in Probability of Loss		0.80
	Expected Benefit of Treatment		\$ 4,480
	Exp B/C Ratio of Treatment for Market Resources Only		3.0
	Implied Minimum Value (IMV) of Protecting Non-Market Resource Values		Justified

MAP ZONE C	Value Type	Value at Risk	Implied Value and/or Benefit Cost
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	Life and Safety	Yes	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	Total Market Resource Value		#REF!
	Proposed Treatment		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!
	Exp B/C Ratio of Treatment for Market Resources Only		#REF!
Implied Minimum Value (IMV) of Protecting Non-Market Resource Values			#REF!
MAP ZONE D	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	Yes	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	Total Market Resource Value		#REF!
	Proposed Treatment		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!
	Exp B/C Ratio of Treatment for Market Resources Only		#REF!
Implied Minimum Value (IMV) of Protecting Non-Market Resource Values			#REF!
MAP ZONE E	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	Yes	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	Total Market Resource Value		#REF!
	Proposed Treatment		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!
	Exp B/C Ratio of Treatment for Market Resources Only		#REF!
Implied Minimum Value (IMV) of Protecting Non-Market Resource Values			#REF!
MAP ZONE F	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	Yes	

	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	Total Market Resource Value		#REF!
	Proposed Treatment		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!
	Exp B/C Ratio of Treatment for Market Resources Only		#REF!
	Implied Minimum Value (IMV) of Protecting Non-Market Resource Values		#REF!
MAP ZONE G	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	Yes	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	Total Market Resource Value		#REF!
	Proposed Treatment		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!
MAP ZONE H	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	Yes	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	Total Market Resource Value		#REF!
	Proposed Treatment		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!
MAP ZONE I	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	Yes	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	Total Market Resource Value		#REF!
	Proposed Treatment		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!

	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	\$ 64,165
	Market Values: Loss of Use	No	\$ -
	<i>Total Market Resource Value</i>		\$ 64,165
	<i>Proposed Treatment</i>		\$ 5,219
	Reduction in Probability of Loss		0.80
	Expected Benefit of Treatment		\$ 51,332
	Exp B/C Ratio of Treatment for Market Resources Only		9.8
	Implied Minimum Value (IMV) of Protecting Non-Market Resource Values		Justified
MAP ZONE J	Value Type	Value at Risk	Implied Value and/or Benefit Cost
	Life and Safety	Yes	
	Non-Market: Cultural Values	Yes	
	Non-Market: Ecological Values	Yes	
	Market Values: Direct	Yes	#REF!
	Market Values: Loss of Use	Yes	#REF!
	<i>Total Market Resource Value</i>		#REF!
	<i>Proposed Treatment</i>		#REF!
	Reduction in Probability of Loss		#REF!
	Expected Benefit of Treatment		#REF!
	Exp B/C Ratio of Treatment for Market Resources Only		#REF!
	Implied Minimum Value (IMV) of Protecting Non-Market Resource Values		#REF!

Appendix B: Contact List

<i>Name</i>	<i>Agency</i>	<i>Contact Number</i>
Tobin (Toby) Gibson	Southern California Edison	9760) 376-6766
Judy Hyatt	Kern County Field Supervisor Representative	(661) 303-3345
Mike Ennis	Tulare County Supervisor	(559) 636-5000
Kristi McGuire	California Department of Fish and Game	(760) 376-2846
Chris Whitley	California Water Service Co. Water	(760) 376-1315

	Company	
Hugo Calvillo	NRCS – Victorville	(760) 843-6882 x 106
Debbie Cambell	CLM – Concessionaire	(760)376-1815

Appendix C: Noxious Weed Report and Monitoring Plan – See Bull BAER Project Record

All other documents are in the Project Record on the Bull Incident BAER external hard drive.