USDA-FOREST SERVICE

FS-2500-8 (6/06)
Initial Request
Date of Report: June 19, 2013

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: Powerhouse Fire

B. Fire Number: CA-ANF-002297

C. State: CA

D. County: Los Angeles

E. Region: 05

F. Forest: Angeles National Forest

G. District: 53

H. Fire Incident Job Code: P5HH9J

I. Date Fire Started: May 30 , 2013

J. Date Fire Contained: June 10, 2013

K. Suppression Cost: $28 million

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 70 miles of hand line, 55 miles of dozer line
2. Fireline seeded (miles): None
3. Other (identify): None

M. Watershed Number: HUC 6: 180902060302 (Fairmont Reservoir), 180701020401(Elizabeth Lake), 180902060299 (Oak Creek), 180701020404 (Elizabeth Lake Canyon), 180701020399 (San Francisquito), 180701020404 (Deer Canyon), 180902061402 (Myrick Canyon)

N. Total Acres Burned: 30,149
NFS Acres (18,690) BLM (229) State (713) Private (10,517)

O. Vegetation Types: Chamise Chaparral, Mixed Chaparral, Big Cone Douglas Fir Forest, Canyon Live Oak/Sycamore Riparian Forest, Gray Pine/Scrub Oak Woodland

P. Dominant Soils: Trigo, granitic substratum-Exchequer families-Rock outcrop complex 60 to 100 percent slopes (32 percent), Trigo, granitic substratum-Exchequer families-Rock outcrop complex (12

percent), Amargosa rocky coarse sandy loam (12 percent), Caperton-San Andreas-Modesto families complex (6 percent).

Q. Geologic Types: Igneous bedrock rock including quartz monzonite, granodiorite, and gneiss. Some metamorphic bedrock and minor amounts of sedimentary bedrock are within the fire perimeter.

R. Miles of Stream Channels by Order or Class: : Perennial = 3 miles, Intermittent = 67 miles, Ephemeral=unknown miles

S. Transportation System

Trails: 10 miles Roads: 28 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 2720 (9%) (Unburned), 7437 (25%) (low), 16,875 (56%) (moderate), 3117 (10%) (high)

B. Water-Repellent Soil (acres): 8000

C. Soil Erosion Hazard Rating (acres):
4759 (low) 4964 (moderate) 18569 (high) 335 (very high)

D. Erosion Potential after fire: 15 tons/acre Erosion potential before fire: 2.4 tons/acre

E. Sediment Potential: 25 – 30 times normal (annual erosion rate cu.yds./sq.mi. : 1000 – 10,000)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	5-10
B. Design Chance of Success, (percent):	64
C. Equivalent Design Recurrence Interval, (years):	2
D. Design Storm Duration, (hours):	2.3
E. Design Storm Magnitude, (inches):	1.5
F. Design Flow, (cubic feet / second/ square mile):	11.9
G. Estimated Reduction in Infiltration, (percent):	25
H. Adjusted Design Flow, (cfs per square mile):	70

PART V - SUMMARY OF ANALYSIS

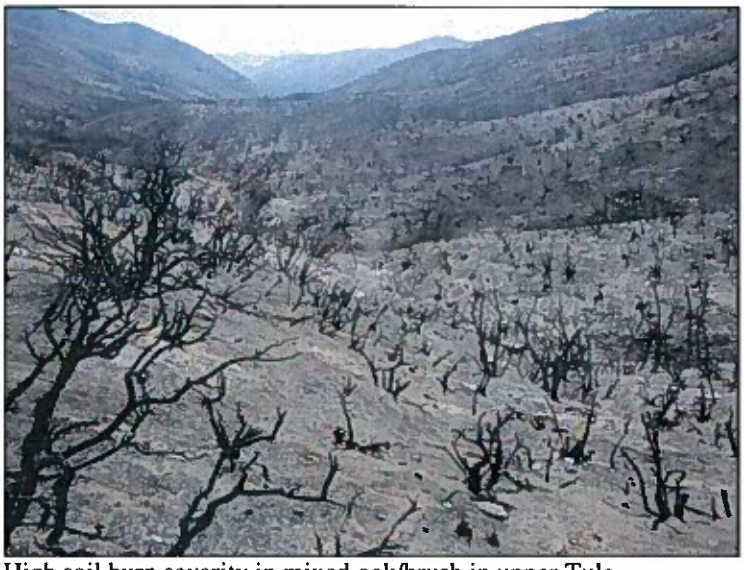
Background

The Powerhouse Fire began on Thursday, May 30, 2013, on land administered by the Santa Clara Mojave River Ranger District, Angeles National Forest. Driven by steep terrain, low relative humidity, and wind, the fire spread quickly, burning into Los Angeles County, State and Bureau of Land Management jurisdictions.

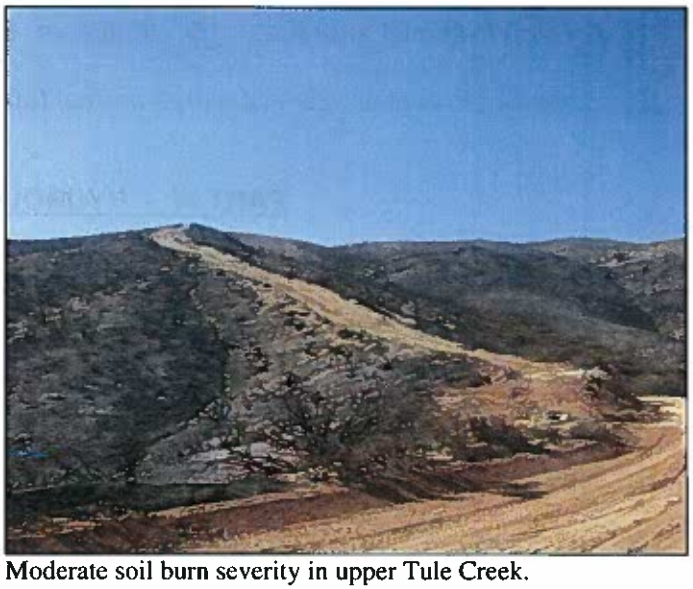
At its height, nearly 1,500 firefighters and support personnel were assigned to the fire, with a very steep ramp up of resources.

Approximately 67% of the burn area burned is at a high and moderate soil burn severity (see soil burn severity map below). The rest of the fire was either low or very low soil burn severity. 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.

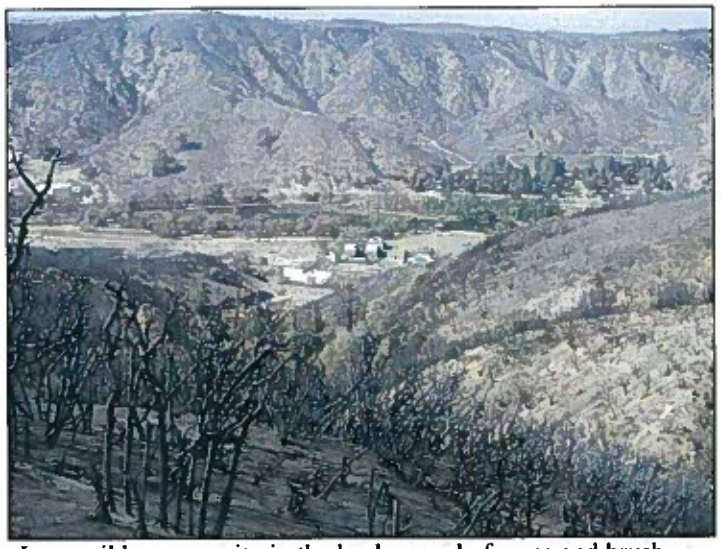
General trends: Oak/brush areas were moderate to high soil burn severity with 100 percent mortality especially on east and north-facing slopes; South and west-facing buckbrush and manzanita areas had moderate soil burn severities and with 70 to 100 percent mortality (see pictures below); Areas in low lands to the north were grass and small bushes and had low soil burn severity.



High soil burn severity in mixed oak/brush in upper Tule Crk.



Moderate soil burn severity in upper Tule Creek.

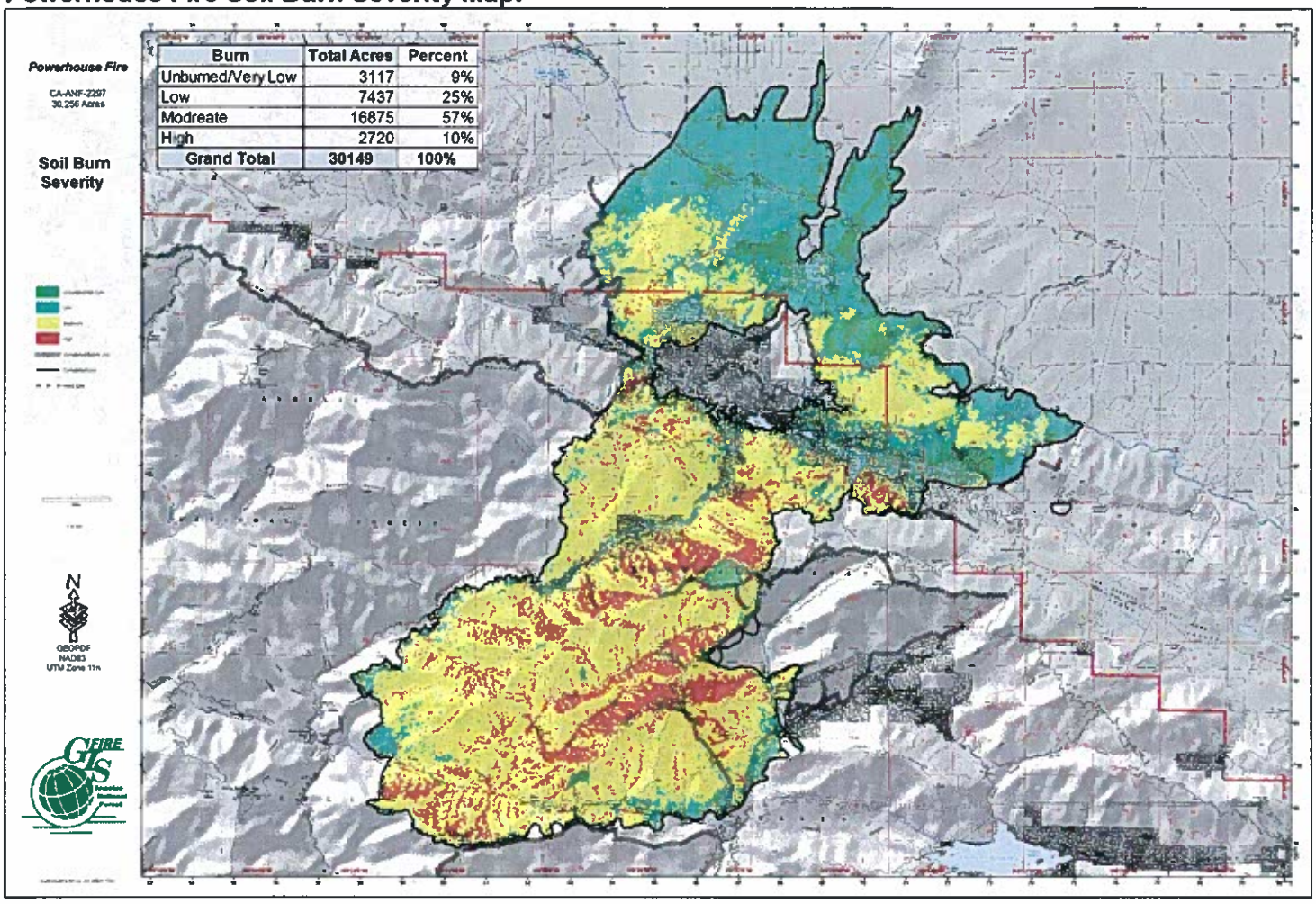


Low soil burn severity in the background of grass and brush

High soil burn severity with char to 2 inches with repellency

Water repellancy is running from 2 to 4 inches deep depending upon soil texture and vegetation that was burned. Steep gravelly scrub oak/manazanita areas that were either south or west-facing burned hot, leaving strong water repellancy down to 4 inches. Deep char and soil organic matter destruction were also present (see picturess above).

Powerhouse Fire Soil Burn Severity Map:



A. Describe Critical Values/Resources and Threats:

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**

Values at Risk and Risk Matrix Table[1]

Risk Type	Value at Risk	Potential Threats	Owner ship	Probability of Damage	Magnitude of Conseq	Risk	Forest Service Treatment Method
Life/ Property	Cottonwood Campground	flooding, debris flows	ANF	Likely	Major	Very High	closure and signs, bathroom treatment
Life/ Property	Cottonwood Entrance Road	flooding, debris flow	ANF	Likely	Moderate	High	closure
Life/ Property	Cottonwood Nature Trail 3315W05	sediment and trail destruction	ANF	Likely	Moderate	High	closure and signs
Life/ Property	PCT	hazard trees, rock fall, debris flows	ANF	Very Likely	Moderate	Very High	closure and signs, enforcement monitoring
Life/ Property	Canyon Creek Sports Camp	flooding, debris flows	Private	Likely	Major	Very High	interagency coordination
Life/ Property	N. Lake Hughes community	flooding, debris flows	Private	Possible	Moderate	Intermediate	interagency coordination
Life/ Property	Lake Hughes Community Center	flooding, debris flows	Private	Possible	Moderate	Intermediate	interagency coordination
Life/ Property	Lake Elizabeth community	flooding, debris flows	Private	Possible	Moderate	Intermediate	interagency coordination
Life/ Property	Green Valley community	flooding, debris flows	Private	Unlikely	Minor	Very Low	interagency coordination
Life/ Property	LA County Camp	flooding, debris flows	County	Unlikely	Moderate	Low	interagency coordination
Life/ Property	LA County Nursery	flooding, debris flows	County	Possible	Moderate	Intermediate	interagency coordination
Life/ Property	Lake Hughes County Road	flooding, debris flows, rock fall	ANF	Likely	Major	Very High	interagency coordination
Life/ Property	San Fran County Road	flooding, debris flows	ANF	Possible	Moderate	Intermediate	interagency coordination
Life/ Property	Lake Hughes Rec Cabins	flooding, debris flows, hazmat	ANF	Very Likely	Moderate	Very High	stabilization
Life/ Property	Lake Hughes Sewage Line	flooding, debris flows, hazmat	Private	Possible	Moderate	Intermediate	interagency coordination
Life/ Property	Powerhouse 1	flooding, debris flows	ANF	Unlikely	Minor	Very Low	none
Life/ Property	Castaic Lake	debris flows, sedimentation	ANF	Very Likely	Minor	Low	interagency coordination
Life	South Portal Road Adit	unsafe access	Private	Unlikely	Minor	Very Low	none
Life	Hazel Dell Mine	unsafe access	ANF	Unlikely	Minor	Very Low	none
Life	Unamed San Fran Adit	flooding, debris flows	ANF	Unlikely	Minor	Very Low	none

Life/ Property	7N08 Maxwell Truck Trail	flooding, road destruction	ANF	Likely	Moderate	High	replacement drains/culverts
Life/ Property	7N05 Lake Hughes Truck Trail	flooding, debris flows, rock fall	ANF	Likely	Moderate	High	replacement drains/culverts
Life/ Property	6N24 Ruby/Clearwater	flooding, debris flows	ANF	Very Likely	Major	Very High	closure, replacement drains/culverts, hardened crossings,
Life/ Property	Human safety (Maxwell Road)	hazmat	ANF	Likely	Moderate	High	clean-up
Natural Res	Red legged frog occupied habitat	flooding, debris flows	ANF	Unlikely	Moderate	Low	none
Natural Res	Condor	microtrash	ANF	Likely	Major	Very High	micro-trash pickup
Natural Res	Vegetation Recovery	weeds, unauthorized OHV	ANF	Very Likely	Major	Very High	weed detection surveys, OHV barriers, closure
Natural Res	Soil Productivity	OHV, weed invasion	ANF	Very Likely	Moderate	Very High	OHV barriers, weed detection
Life	Safety (Maxwell Road)	hazmat	ANF	Likely	Moderate	High	clean-up
Life	Safety (Ruby 2 guzzlers)	hazmat	ANF	Likely	Moderate	High	removal
Life	Safety (Unknown mine)	hazmat	ANF	Unlikely	Moderate	Low	none
Life	Safety (Ruby/Tule vehicle parts)	hazmat	ANF	Unlikely	Minor	Very Low	none
Life	Safety (Clearwater Rd. drums)	hazmat	ANF	Likely	Moderate	High	clean-up
Life	Pesticide Containers on Tule Ridge	hazmat	ANF	Likely	Moderate	High	clean-up
Life	Pot farm S. end Lake Hughes Rd.	hazmat	ANF	Unlikely	Minor	Very Low	none
Life	Lake Hughes Water Quality	flooding, debris flows	ANF	Possible	Moderate	Intermediate	interagency coordination
Life	Lake Elizabeth Water Quality	flooding, debris flows	ANF	Possible	Moderate	Intermediate	interagency coordination

Note: Only values at risk greater than intermediate will be addressed below. County and private property requires interagency coordination.

Threats to Life and Property

The combined factors of severely burned watersheds directly above private property, 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 property in the floodplain directly below those watersheds indicate a high risk to life and property creating an emergency situation. There is also a risk to the health and safety of people living along Hughes Lake and along Canyon Creek Road from flash flooding/debris flows during large storm events.

Motor vehicles, hikers, mountain bikers, and equestrians are also at risk from rock fall and washouts while traveling along the Pacific Crest Trail in the burn area.

Cottonwood Campground
Risk Assessment –Life and Infrastructure

Probability of Damage or Loss: Likely. The Cottonwood Campground watershed is steep gravelly sandy soils that have moderate to high soil burn severity and lack soil cover and have water repellency down to 4 inches in the soil. This condition makes this watershed susceptible to sheet and rill erosion and debris flows.

Magnitude of Consequence: Major. Flooding is possible along with possible debris flows endangering any unwary campers.

Risk Level: Very High.

Cottonwood Entrance
Risk Assessment –Road and Infrastructure

Probability of Damage or Loss: Likely. This determination is due to increased erosion rates already occurring post fire on the very steep slopes and a burned out wood retaining wall.

Magnitude of Consequence: Moderate. This determination is due to the lower usage of this road by vehicles and the unlikelihood of hikers being out during rain events.

Risk Level: High.

Cottonwood Nature Trail
Risk Assessment –Life and Trail

Probability of Damage or Loss: Likely. This determination is due to increased rock fall and erosion rates already occurring post fire on the very steep slopes above the trail and the change in watershed response causing a potential for greatly enhanced sediment and water flows in the Elizabeth Lake Creek and associated tributaries.

Magnitude of Consequence: Major. This determination is due to the low to moderate usage of this trail and the unlikelihood of hikers being out during rain events.

Risk Level: Very High.

Pacific Crest Trail
Risk Assessment –Life and Trail

Probability of Damage or Loss: Very Likely. This determination is due to increased rock fall and erosion rates already occurring post fire on the very steep slopes above the trail.

Magnitude of Consequence: Moderate. This determination is due to the unlikelihood of hikers being out during rain events and the proposed closure of the area and trail re-route.

Risk Level: Very High.

Canyon Creek Sports Camp
Risk Assessment –Life and Infrastructure

Probability of Damage or Loss: Likely. The Canyon Creek Sports Camp watershed has moderately steep gravelly sandy soils that have moderate to high soil burn severity, lacking soil cover and displaying water repellency down to 4 inches in the soil. This condition makes this watershed susceptible to sheet and rill erosion and debris flows.

Magnitude of Consequence: Major. Several drainages have altered drainage patterns which could contribute to flooding in the camp. Dry ravel has preloaded the channels with sediment which, during large precipitation events, could help contribute to debris flows affecting this children's youth camp.

Risk Level: Very High.

Lake Hughes County Road
Risk Assessment –Road and Infrastructure

Probability of Damage or Loss: Likely. This determination is due to increased rock fall and erosion rates already occurring post fire on the very steep slopes above the road and the change in watershed response causing a potential for greatly enhanced sediment and water flows down the road.

Magnitude of Consequence: Major. This determination is due to the high usage of this road by vehicles and the potential for rocks and sediment on the road to cause a vehicle accident.

Risk Level: Very High.

7N08 Maxwell Truck Trail
Risk Assessment –Road and Infrastructure

Probability of Damage or Loss: Likely. This determination is due to increased rock fall and erosion rates already occurring post fire on the very steep slopes above the road.

Magnitude of Consequence: Moderate. This determination is due to the moderate usage of this road by vehicles and the potential for rocks and sediment on the road to cause a vehicle accident.

Risk Level: High.

7N05 Lake Hughes Truck Trail
Risk Assessment –Road and Infrastructure

Probability of Damage or Loss: Likely. This determination is due to increased rock fall and erosion rates already occurring post fire on the very steep slopes above the road.

Magnitude of Consequence: Moderate. This determination is due to the limited usage of this road by vehicles and the potential for rocks and sediment on the road to cause a vehicle accident.

Risk Level: High.

6N24 Ruby Clearwater Road
Risk Assessment –Road and Infrastructure

Probability of Damage or Loss: Very Likely. This determination is due to increased rock fall and erosion rates already occurring post fire on the very steep slopes above the road and the change in watershed response causing a potential for greatly enhanced sediment and water flows into and down the road, causing road failure or destruction.

Magnitude of Consequence: Major. This determination is due to the potential for rocks and sediment on the road to cause a vehicle accident and the use of this road by utility companies.

Risk Level: Very High.

Threats to Water Quality

Hazmat: There are seven Recreation Cabins that were severely burned and destroyed with the possibility of easily mobilized toxic chemicals. Most sites have concrete floors surrounded by dirt grades. With heavy rainfall these flat building foundations will not retain any water before spilling out onto the dirt grades and lake water below. There needs to be coordination with regional water boards to ensure water quality objectives established to protect state waters from pollutants or waste disposal are met. The Forest water quality plan includes recreational uses to protect water from pollutants. It is also recommended that septic tanks be pumped to reduce the potential of sewage being released into the lake. Other sites not deemed to be emergencies related to the fire can be found in the Hazardous Materials Specialist report. The Forest should continue to expedite removal and disposal of hazardous materials.

Lake Hughes Recreation Cabins:
Risk Assessment – Life and Water Quality

Probability of Damage or Loss: Very Likely. There are seven Recreation Cabins that were severely burned and destroyed with the possibility of easily mobilized toxic chemicals. Most sites have concrete floors surrounded by dirt grades. With heavy rainfall these flat building foundations will not retain any water before spilling out on to the dirt grades and Lake Hughes water below.

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. The Forest water quality plan includes recreational uses to protect water from pollutants.

Risk Level: Very High.

Hazmat sites (pesticide containers, chemical drums, burned guzzlers, refrigerator unit):

Risk Assessment –Life and Water Quality

Probability of Damage or Loss: Likely. Hazardous material sites, drum dump sites, public safety, water quality.

Magnitude of Consequence: Moderate.

Risk Level: High.

Threats to Threatened, Endangered and Sensitive Wildlife Species
California Condor: An emergency condition exists for this federally listed species as a result of post-fire effects of the Powerhouse Fire on terrestrial habitats. The emergency condition is caused by the removal of vegetation exposing micro-trash and ammunition related debris to foraging condors.
Risk Assessment – T&E Wildlife Species

Probability of Damage or Loss: Possible. This determination is due to the distribution and flight range of observed condors.

Magnitude of Consequence: Major. This determination is due to the potential for mortality upon ingestion of micro-trash resulting in lead poisoning in adult birds and gastrointestinal blockage in chicks.

Risk Level: High.

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 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 and long-term effects, both moderate and intermediate.

The overall soil burn severity in the Powerhouse Fire is 9% unburned/very low, 25% low, 57% 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 isolated patches; these areas have surficial char with partial destruction of structure, porosity, and roots. The most severely burned slopes occur on steep slopes at higher elevations and mostly on north aspects where pre-fire vegetation density and fuels accumulations were higher.

Risk Assessment – Soil Productivity

Probability of Damage or Loss: Very Likely. This determination is due to the change in watershed response causing sheet and rill erosion of topsoil. There is also a significant amount of unauthorized off-highway vehicle use within the burn area and dozer lines that will be highly detrimental to vegetation recovery, encouraging noxious weed invasion.

Magnitude of Consequence: Moderate. This determination is due to the change in watershed response causing erosion of topsoil in a fire-adapted ecosystem. .

Risk Level: Very High.

Threats to Vegetation Recovery
Increase in Noxious Weed Populations: An emergency exists with respect to vegetative recovery as a result of the threat of post-fire weed introduction and spread. The unknowing introduction and dispersal of invasive weeds into areas disturbed by fire suppression and rehabilitation has the potential to establish large and persistent weed populations. In addition, it is highly likely that existent weed infestations along roadsides 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. It is expected that most native vegetation would recover if weed invasions are minimized. Approximately 55 miles of dozer line and 70 miles of handline were also constructed outside and within the burn perimeter. In addition to causing an increase in weed invasion, the disturbances caused by dozer/hand lines are expected to create accelerated erosion and soil compaction that may also inhibit the recovery of

native plant populations. Aprroximately 200 acres of the Powerhouse Fire also overlapped with the Copper Fire of 2002. If weed infestations are not controlled it is expected that this short fire return interval will lead to vegetation type conversion in this 200 acre area, since the native vegetation has not been allowed to re-establish and was not mature enough for obligate seeders to produce necessary seed quantities to compete with aggressive non-native weeds.

Risk Assessment – Vegetation Recovery

Probability of Damage or Loss: Very Likely. This determination is due to the change in watershed response causing sheet and rill erosion of topsoil. There is also a significant amount of unauthorized off-highway vehicle use within the burn area and dozer lines that will be highly detrimental to vegetation recovery and encourage noxious weed invasion.

Magnitude of Consequence: Major. This determination is due to the high potential for vegetation type conversion to non-native annual grasslands in substantial portions of the burn area, most especially dozer lines, roadsides, and areas that have experienced frequent fire intervals.

Risk Level: Very High.

Threats to Cultural Resources
None

B. Emergency Treatment Objectives:

• Provide for Public Safety– Ensure communication of potential post fire values at risk has occurred. Reduce threat to life and safety by closing hazardous areas and roads until watershed stabilization has occurred and/or the threats/hazards have been removed. Re-evaluate the burned area before lifting the closures. Further reduce threat to life and safety by installing and maintaining educational/safety signing in hazardous areas and roads until watershed stabilization has occurred and/or the threats/hazards have been removed. Cleanup or stabilize hazardous material sites to prevent water and soil contamination.

• Limit Damage to Property- Private residences/businesses, bridges, and roads within and downstream of the burn area are at greater risk from flash flooding and sedimentation after the fire. Clearing channel obstructions and increasing the road cross-drainage capacity will help mitigate the effects of accelerated storm flows and sedimentation to property. The treatment objective is to increase the awareness of the private property owners, Natural Resource Conservation Service (NRCS), Los Angeles County Flood, Public Works, and Fire, and other agencies of the potentially hazardous conditions resulting from the fire.

• Noxious Weeds - Reduce the potential for impaired vegetative recovery and introduction/spread of noxious weeds by conducting detection surveys and preventing unauthorized OHV activity.

• California Condor- Protect condors from microtrash threats.

• Road and Trail Treatments – Objective is to improve road drainage to protect the road system. Reduce erosion from the road surface and sediment delivery to stream channels. Reduce the threat to life and safety for road users.

• Limit loss of soil productivity – Post fire erosion rates have increased due to the burn itself, and to accelerated rates of runoff water impacting OHV trails causing additional erosion and sedimentation. Existing OHV trails should be water barred and reshaped to conform to the natural drainage characteristics to reduce erosion thereby limiting loss of soil productivity.

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

Land **90** % Channel **0**% Roads/Trails **90** % Protection/Safety **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90%	80%	N/A
Channel	N/A	N/A	N/A
Roads/Trails	90%	75%	70%
Protection/Safety	90%	80%	75%

E. Cost of No-Action (Including Loss): $5,150,000

F. Cost of Selected Alternative (Including Loss): $921,538

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Brad Rust: Shasta-Trinity National Forest

Email: brust@fs.fed.us Phone: (530) 226-2427 FAX: (530) 226-2485

Core Team

Eric Nicita (Soils)
Joe Gonzales (Hazmat)
Katie VinZant (Co-team Lead, Botanist)
Ann Berkley (Wildlife Biologist)
Pete Johnston (Wildlife trainee)
Andy Ramsey (Engineering)
Nikos Hunner (Soils trainee)
Thalia Ryder (Arch trainee)

Rob Taylor (Hydrologist)
Darrell Vance (Archaeologist)
Cliff Johnson (Lands/Engineering)
Dave Collins (GIS)
Kerry Johnston (Botany trainee)
Kyle Wright (Hydrologist)
Ray Kidd (Recreation)

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.)

Implementation Team

To provide for logistics and tracking of treatment implementation.

Implementation Team Cost

Item	Unit	Unit Cost	# of Units	Cost
Implementation Team Leader	Days	$400	15	$6,000
BAER Coordinator	Days	$400	5	$2,000
Vehicle mileage	Miles	$0.55	2000	$1,100
			Total Cost	**$9,100**

Land Treatments:

Noxious Weed Detection and Rapid Response

Weed detection surveys and rapid response eradication treatments are to determine whether ground disturbing activities related to the Powerhouse Incident and the fire itself have resulted in new or the expansion of existing noxious weed infestations. With 55 miles of dozerline, 70 miles of handline, 70 miles of riparian corridors, 28 miles of road and 10 miles of trail in the Powerhouse fire it is expected that new and expanding weed infestations will proliferate in and along these vectors if left unchecked, eventually leading to vegetation type conversion. As stated under the vegetation recovery threat section above, it is also expected that the 200 acre area burned in the Copper Fire will also face type conversion impacts given the rapid fire return interval that is much more frequent than historic fire events. In addition, given that more than half of the Powerhouse Fire is in Inventory Roadless Areas it is imperative to keep new infestations from establishing in the backcountry and to keep infestations on the road perimeters from expanding into dozerlines, riparian areas, and trails. Surveys and raid response eradication treatments will begin in 2014 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits may be required during the growing season. If timing is such that all the target species are detectable/treatable in one visit, the actual costs would be lower than displayed below. Completion of surveys in riparian areas, dozer lines, roads, staging areas, safety zones, known invasive and sensitive plant populations, and the 200 acre area burned in the Copper Fire would be the first priority. The second survey priorities would be along handlines and drop points. Surveys of the general habitats in the burned area would be the lowest priority. Detailed weed detection survey guidelines are attached in Appendix A.

Weed Detection Cost

Item	Unit	Unit Cost	# of Units	Cost
1 GS-11 botanist	Days	$400	5	$2,000
4 GS-7 weed technicians	Days	$220	50	$35,200
Supplies	Each	$1,500	1	$1,500
Vehicle gas mileage	Miles	$0.55	7500	$4,125
Vehicle FOR	Month	3	350	$1,050
			Total Cost	**$43,875**

Condor Protection: Lead and Micro-trash Removal
Reduction of sites with a concentration of micro-trash and ammunition related debris that pose a risk for condors, an endangered species. The fire has removed vegetation and exposed areas where micro-trash and ammunition related debris are now easily accessible by foraging condors. The primary treatment for removal of micro-trash and ammunition hazards is manual clean-up of the site. The number of sites needing treatment has not yet been determined. Volunteers will be used when possible.

Condor Protection and Removal of Micro-trash Costs

Item	Unit	Unit Cost	# of Units	Cost
GS-11 biologist	Days	$350	5	$1,750
Type 2 crew	Days	$4,000	10	$40,000
Mileage	Miles	$1.00	1000	$1000
Misc. supplies	Each	$200	1	$200
			Total Cost	**$42,950**

Road and Trail Treatments:

Pacific Crest Trail Closure, Reroute, and Storm Patrol
For the purposes of public safety, the section of the Pacific Crest Trail in the burn area should be closed and an appropriate reroute established, ensuring the safety of hikers. Storm patrol and OHV trespass protection should be conducted to ensure trail tread is maintained as a resource. Because of the high incidence of dry ravel coming onto the trail, actual repair and reopening is probably impractical for 2 to 3 years.

PCT Treatment Cost

Item	Unit	Unit Cost	# of Units	Cost
1 GS-7 Recreation Technician	Days	$300	15	$4,500
Vehicle mileage	Miles	$0.55	1500	$825
			Total Cost	**$5,325**

Road Treatments

Because much of the vegetation adjacent to and above the roads has been completely burned, nearly all of the drainage structures are undersized for the expected increased runoff of water and debris. Some of the structures have been damaged by rolling or falling debris and plugged by rocks or soil.

All of the road drainage structures are located in natural drainage channels or have road dips constructed to these drains. Since highly increased runoff is expected during winter storms, and is concentrated and directed to these channels, it is anticipated that most of these structures will fail and will be lost downhill. With structure failure and loss, most of the adjacent road sections will be severely damaged or completely lost. This increased soil loss will increase the sediment load of downstream channels.

These treatments will be focused on mid to lower slope road locations where stream bulking will be the greatest, impacting crossings and road surfaces.

POWERHOUSE - ROAD COSTS

Item	Unit	Unit Costs	# of Units	Cost
Install Roadway Dips	Each	$765	13	$9,945
Construct Treated Timber Retaining Wall	SF	$50	2848	$142,400
Install Overside Drains	Each	$2,500	53	$132,500
Install Overside Flume	LF	$75	1490	$111,750
Install Gabion Retaining Wall	Cubic Yards	$200	86	$17,200
Place Backfill Material	Cubic Yards	$45	160	$7,200
Place Energy Dissipater	Cubic Yards	$325	8.8	$2,860
Reset Existing Fume	Lineal Feet	$150	80	$12,000
Remove Drainage Inlet & Starter Section	Lump Sum	$28,000	1	$28,000
Clean Flume	LF	$12	1183	$14,196
Clean Culvert Inlet/Outlet/Catch Basins	Each	$596	20	$11,920
Clean 12-24" Overside Drains and Flumes	LF	$20	480	$9,600
Remove Roadway Dip	ea	$300	2	$600
Slump and slide removal following storms	Each	$33,000	1	$33,000
Hazard tree removal	ea	$700	6	$4,200
Inst. Conc. Inlet Face	Each	$185	4	$740
Repair Inlet	Each	$125	3	$375
Const. Concrete Headwall	C.Y.	$375	2.5	$937.50
Grading with water truck	miles	$1,200	16	$19,200.00
			TOTAL	$558,624
Mobilization				$26,000
Contract Prep. & Admin.				$28,500
				$613,124

Protection/Safety Treatments:

Interagency Coordination

Interagency coordination started during the fire and continued throughout the BAER Assessment. Continuing this coordination by providing the BAER Assessment Report, specialist reports and attending meetings is anticipated. In addition, letters detailing potential physical responses and impacts from the fire that may influence safety in and downstream of the fire area will need to be composed and sent to all public and private stakeholders at risk from increased sediment and flooding, such as those listed below for the following values at risk:

- NRCS – Canyon Meadows Youth Sports Camp, Lake Hughes Community Center, Painted Turtle Special Needs Camp, and other homeowners.
- LA County – Lake Hughes Road and San Francisquito Canyon Road under special use permit; road maintenance clearances.
- LA RWQCB – Lake Hughes cleanup (keep track of tonnage cleanup and report), road sediment reduction from treatments and storm maintenance.
- DWR – Castaic Lake to see increased sediment loads following storms.
- LADWP/SCE – increased road work, storm patrol, and maintenance will be required.

- Sheriff's Department-reverse 911 call for significant precipitation events for community camps, charitable halls, and private property owners.

Interagency Team Cost

Item	Unit	Unit Cost	# of Units	Cost
Implementation Team Leader	Days	$400	5	$2,000
BAER Coordinator	Days	$400	2	$800
Forest Resource Officer	Days	$450	2	$900
Lands Specialist	Days	$450	2	$900
Hydrologist (includes per diem)	Days	$650	3	$1,950
Vehicle mileage	Miles	$0.55	2000	$1,100
			Total Cost	**$7,650**

Human Life and Resource Protection (Fire Area Closure)
To support the Forest closure order and ensure safety for Forest visitors and protection to Forest resources during the recovery period, gates and closure/warning signs will be placed at trailheads, campgrounds, picnic areas, trails, and road locations adjacent and within the fire perimeter. Site specific location such as Forest roads need to be evaluated annually, to prioritize areas identified as possibly requiring extended closure to protect Federally listed species and associated habitats.

Forest Infrastructure: To protect life and property associated with the public use of the non-motorized hiking trails, picnic areas, and trailheads within and downslope/downstream of the Powerhouse Fire, the BAER Assessment Team recommends the temporary closure of the burn area to all recreational users. The closures will be accomplished by gate closures and informing the public at strategic locations of access points outside and within the fire perimeter which will effectively close off the burn area.

Forest Infrastructure Closure Treatment Cost

Item	Unit	Unit Cost	# of Units	Cost
Closure Signs (53" x 23')	Each	$100	30	$3,000
Closure Signs (4"x 8")	Each	$30	30	$90
Sign Posts	Each	$22.50	30	$675
Sign Installation Labor (1 GS7)	Days	$250	3	$750
			Total Cost	**$4,515**

Road Closure
Gates will be installed at specific locations on the Santa Clara/Mojave Rivers Ranger District, Angeles National Forest to implement the Powerhouse Closure Order. Precise locations (GPS Latitude/longitude coordinates) are listed below. A map with proposed gate locations is included in the recreation specialist report.

Road Closure Treatment Cost

Item	Unit	Unit Cost	# of Units	Cost
Install Barbless Fencing 1) 7N02 Munz Cyn@ Peterson Ranch	Feet	$2.00	25	$50
Steel Road Gates – Standard ANF road gate 1) 6N24 Clearwater @ San Francisquito – 34.35.27/118.27.32	Each	$10,000	7	$70,000

2) 7N02 S. Portal @ So. Portal OHV trailhead – 34.37.16/118.26.34 3) 7N05 Lake Hughes Truck Tr.@ Community Center – 34.40.23/118.26.23 4) 7N23@ Pine Canyon Rd. – 34.42.11/118.31.41 5) 7N08 Maxwell @ Lake Hughes Rd – 34.40.18/118.27.31 6) 7N23 @ 7N08 Maxwell – 34.41.27/118.33.16 7) 7N01 Tule @ 7N02 So. Portal Rd. – 34.38.54/118.25.01				
Boulders – placement w/gate installation	Load	2	$1,500	$3,000
Boulder Barrier Placement (Labor and Vehicle)	Days	$1160	10	$11,600
T-post and barbless wire [Red Mtn Dozer Line] Dry Gulch Rd Ruby/Clearwater Cyn Rd	Feet	$2.00	300	$600
2 – GS 5 for installation of T-post and wire	Day	$450	4	$1,800
Vehicle Mileage	Mileage	.50	450	$225
Misc. Supplies (locking pins and locks)	Unit	2,500	1	$2,500
Information Road Closure Signs/decals	Each	$300	10	$3,000
Sec 106 Compliance (new gate sites)	Day	$400	5	$2,000
			Total Cost	**$94,775**

Cottonwood Campground Closure

The BAER Assessment Team recommends the closure of Cottonwood Campground area to all recreational users. The closure will be accomplished by installation of a new gate with signing of closure informatinon. Following are the costs to implement Powerhouse Forest Order Closure of Cottonwood Campground.

Cottonwood Closure Treatment Cost

Item	Unit	Unit Cost	# of Units	Cost
Steel Road Gate – Standard ANF road gate Cottonwood Campground 6N60	Each	$10,000	1	$10,000
Pumping of Vault Toilets	Each	$1,350	2	$2,700
Vault Containment Protection	Each	$200	1	$200
Sec 106 Compliance (gate installation)	Each	$400	1	$400
Misc. Supplies (signs)	Unit	$150	1	$150
			Total Cost	**$13,450**

OHV Trail Stabilization

OHV trails (Butterfield and So. Portal) within the burn perimeter are likely to contribute sediment into the San Francisquito drainage. The below treatment includes using a small trail tractor to install rolling dips for water diversion.

OHV Trail Treatment Cost

Item	Unit	Unit Cost	# of Units	Cost
Sweco Tractor trail maintenance (WG-10GS-7 & GS-5)	Day	$600.00	5	$3,000
Transportation/vehicle mileage	Miles	$100.00	5	$500
			Total Cost	**$3,500**

Signage for Unauthorized Uses

Unauthorized recreational activity, including operation of off-highway vehicles, horseback riding, hiking, mountain biking, and other ground disturbing activities are a threat to National Forest System land. Erosion, spread of invasive species, damage to cultural sites, disturbance to wildlife, destruction of wildlife habitat, impaired water quality, and risks to public safety can result from unauthorized access. Due to the accessibility of the fire perimeter from nearby private land, it has been decided that the following treatments are needed.

Unauthorized OHV and Non-OHV Treatment Cost

Item	Unit	Unit Cost	# of Units	Cost
Carsonite Posts	Box	$285.00	4	$1,140
Adhesive Decals	Each	$2.85	60	$171
GS-5 Labor	Day	$225	3	$675
Vehicle Mileage	Mile	.50	450	$225
			Total Cost	**$2,211**

Hazardous Material Stabilization

There are seven Recreation Cabins that were severely burned and destroyed with the possibility of easily mobilized toxic chemicals. Most sites have concrete floors surrounded by dirt grades. With heavy rainfall these flat building foundations will not retain any water before spilling out on to the dirt grades and lake water below. There is the potential for adverse impacts to state waters and coordination with appropriate agencies is required. It is recommended that septic tanks be pumped to reduce the potential of sewage being released into the lake. Other sites not deemed to be emergencies related to the fire can be found in the Hazardous Materials Specialist report. The Forest should continue to expedite removal and disposal of hazardous materials.

Hazardous Material Stabilization

Item	Unit	Unit Cost	# of Units	Cost
Lake Hughes Cabins Hydromulch	acre	3000	5	15000
Septic Pump Rec Cabin	each	500	1	500
Charcoal absorbent waddles	feet	$4	2500	10000
Sewage Line Coordination	day	400	1	400
Fridge clean up	each	500	1	500
Burnt Guzzlers	each	250	2	500
Clearwater Steel Drums	each	125	8	1000
Pesticide Clean Up	each	200	1	200
Vehicle part clean up	each	600	1	600
			Total Cost	**$28,700**

Protection Enforcement

Unauthorized access is a threat to the burned watersheds. The ANF is the most urban Forest in the nation with one of the highest use levels. The challenge for the ANF is managing the high number of users who gain unauthorized accessto the Forest by driving/riding/entering through or around a locked gate or closure sign. This type of unmanaged use can cause damage to natural and cultural resources. Due to increasing population and developments that border the forest, it is difficult to control unauthorized access.

Through past BAER experience, the ANF has determined that signage, gates, fencing, and other hard closures that are installed to discourage soil disturbance and assist in allowing natural vegetative recovery are not effective by themselves. Patrolling within and adjacent to the burn area is needed to enforce the closure and

deter unauthorized access, vandalism, and damage to National Forest System lands. The following treatment is needed.

Protection Enforcement Treatment

Item	Unit	Unit Cost	# of Units	Cost
1 - GS-9 LEO Patrol	Day	$340	40	$6,800
1 – GS-5 OHV - FPO	Day	$225	116	$26,000
Vehicles Mileage	Miles	$0.50	15,000	$7,500
			Total Cost	**$40,300**

I. **Monitoring Narrative:**

Powerhouse Fire
Road Effectiveness Monitoring

The 2500-8 report requests funds to monitor the effectiveness of road treatments on Powerhouse roads.

1. Monitoring Questions
   - Is the road-tread stable?
   - Is the road leading to concentrating runoff leading to unacceptable off-site consequences?

2. Measurable Indicators
   - Rills and/or gullies forming of the road
   - Loss of road bed.

3. Data Collection Techniques
   - Photo documentation of site
   - Inspection Checklist (attached)

4. Analysis, evaluation, and reporting techniques

   - Monitoring will be conducted after storm events. If the monitoring shows the treatment to be ineffective at stabilizing road and there is extensive loss of road bed or infrastructure an interim report will be submitted. A several page report would be completed after the site visit. The report would include photographs and a recommendation on whether additional treatments are necessary.

Road Inspection Checklist

Date:_____ Inspector_____
Time:_____ Forest Road_____

Describe locations reviewed during inspection:_____

_____

_____

Was there road damage?
Was Culvert plugged?_____.
GPS)_____

Describe damage and cost to repair? (GPS)_____

Photo taken of road damage_____

Recommended actions to repair:_____

Powerhouse Fire
Trail Effectiveness Monitoring

The 2500-8 report requests funds to monitor the effectiveness of trail treatments on PCT in the Powerhouse Fire.

1. Monitoring Questions
   - Is the trail tread stable?
   - Is the trail leading to concentrating runoff leading to unacceptable off-site consequences?

2. Measurable Indicators
   - Rills and/or gullies forming on the trail
   - Loss of trail bed

3. Data Collection Techniques
   - Photo documentation of site
   - Inspection Checklist (attached)

4. Analysis, evaluation, and reporting techniques

   - Monitoring will be conducted after storm events. If the monitoring shows the treatment to be ineffective at stabilizing trail and there is extensive loss of trail bed or infrastructure an interim report will be submitted. A several page report would be completed after the site visit. The report would include photographs and a recommendation on whether additional treatments are necessary.

Trail Inspection Checklist

Date:_____ Inspector_____
Time:_____ Forest Trail_____

Describe locations reviewed during inspection:_____

Was there trail damage?
Did the trail crossing fail?_____.
GPS)_____

Describe damage and cost to repair? (GPS)_____

Photo taken of trail damage_____

Recommended actions to repair:_____

Part VI – Emergency Stabilization Treatments and Source of Funds

Initial

Click red icons for notes.	NFS Lands					Other Lands				Money Left
Line Items	Units	Unit Cost	# of Units	BAER $	Spent $	# of Units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
NX Weed Det. Surv.	mi	$50,825	1.0	$43,875	$0		$0		$0	$0
Condor Microtrash Cleanup	project	$42,920	1.0	$42,920	$0		$0		$0	$0
Implementation Team	ea	$9,100	1.0	$9,100	$0		$0		$0	$0
Subtotal Land Treatments				$102,845	$0		$0		$0	$0
B. Channel Treatments - none										
				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
Road Stormproofing	project	$613,124	1	$613,124	$0		$0		$0	$0
OHV Motorized Trial Stormproofing	project	$3,500	1	$3,500	$0		$0		$0	$0
PCT Closure/Reroute	ea	$5,325	1	$5,325	$0		$0		$0	$0
Subtotal Road & Trails				$621,949	$0		$0		$0	$0
D. Protection/Safety										
Interagency Coordinator	ea	$7,650	1	$7,650	$0		$0		$0	$0
Fire Closure Order	ea	$4,515	1	$4,515	$0		$0		$0	$0
Road Closure Gates and Fencing	project	$94,775	1	$94,775	$0		$0		$0	$0
Cottonwood Campground Closure	project	$13,450	1	$13,450	$0		$0		$0	$0
Closure Signs	project	$2,211	1	$2,211	$0		$0		$0	$0
Protection Enforncement	project	$40,300	1	$40,300	$0		$0		$0	$0
Hazmat Stabilization/Cleanup	project	$28,700	1	$28,700	$0		$0		$0	$0
Subtotal Protection				$191,601	$0		$0		$0	$0
E. BAER Evaluation										
Assessment Team	0520	H5BAER	---	---	$78,368	---	$0	---	$0	$0
	---	---	---	---	$0	---	$0	---	$0	$0
Subtotal Evaluation				---	$78,368	---	$0	---	$0	$0
F. Monitoring										
Road Treatment Monitoring	ea	$1,000	1	$1,000	$0		$0		$0	$0
PCT Treatment Monitoring	ea	$1,000	1	$1,000	$0		$0		$0	$0
Subtotal Monitoring				$2,000	$0		$0		$0	$0
G. Totals				**$911,445**	**$0**		**$0**		**$0**	**$0**
Previously approved						Comments:				

Total for this request	**$911,445**		

PART VII - APPROVALS

1. Forest Supervisor (signature) — Date: 6/26/2013

2. for Regional Forester (signature) — Date: 7/9/2013

Appendix A

NOXIOUS WEED DETECTION SURVEY PLAN

Fire Name: Powerhouse Fire Month/Year: June 2013
Authors: Katie VinZant
Author Duty Station: Angeles National Forest

A. Background

Forest Service policy mandates that the Forest minimize the establishment of non-native invasive species to prevent unacceptable degradation of the burned area. It is necessary to conduct noxious weed detection surveys to evaluate the potential for spread from both existing populations and from the activities associated with fire suppression. Therefore, noxious and invasive weed detection surveys are proposed for the first year following the fires to verify the suspected infestations and determine the fires' potential impact on weed populations within the burned area. Russian knapweed (*Acroptilon repens*), tree of heaven (*Ailanthus altissima*), wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), cheatgrass (*Bromus tectorum*), tocalote (*Centaurea melitensis*), blessed thistle (*Cnicus benedictus*), shortpod mustard (*Hirschfeldia incana*), perennial pepperweed (*Lepidium latifolium*), tree tobacco (*Nicotania glauca*), black locust (*Robinia pseudoacacia*), Russian thistle (*Salsola* spp.), tumble mustard (*Sisymbrium spp.*), Spanish broom (*Spartium junceum*), saltcedar (*Tamarix ramosissima)*are known to occur within the burn area and along access routes adjacent to the burn. Many plant dispersal vectors such as Forest roads, trails, high winds, and waterways occur within the fire area. Even though a weed washing station was utilized after five days of suppression activities, seed could have been transported into the burn on suppression vehicles and equipment that arrived on the fire before the washing station was established. Fire is known to enhance the establishment of all weed species present. See the Botany Technical Specialist Report and Appendix AA of this report for more information about specific weed population attributes and recording template for the Powerhouse Fire.

B. Management Concerns

Noxious weed invasions interfere with habitat recovery and ecosystem health within burned areas and fire suppression sites. In particular, noxious weeds hinder the recovery of habitat, especially in arid and riparian ecosystems, by aggressive colonization and reduction of water quality and quantity.

C. Objectives

To determine if the fire and associated ground disturbing activities have promoted the establishment and spread of noxious weeds to the extent that eradication efforts are necessary. Early detection dramatically increases the likelihood of successful treatment. If weeds are detected, a supplemental request for BAER funds will be made for eradication.

D. Parameters

Noxious weed presence, location, density, population size, and persistence.

E. Locations

In and along roads, trails, dozer lines, hand lines, drop points, safety zones, riparian areas, and adjacent to known sensitive and invasive plant populations.

F. Weed Detection Survey Design and Methodology

Surveys will begin in 2014 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits may be required during the growing season. Completion of surveys in roads, dozer lines, riparian areas, staging areas, safety zones, and known invasive and sensitive plant populations will be the first priority. The second survey priorities will be along hand lines, and drop points. Surveys of the general habitats in the burned area will be the lowest priority. All locations of weed species will be mapped, using the Angeles NF, "Invasive Weeds" list.

Surveying will include documentation and hand pulling new weed occurrences at the time of inspection. New weed occurrences will be pulled to root depth, placed in sealed plastic bags, and properly disposed.

Documentation of new infestations will include:

- Mapping perimeter of new infestations
- Filling out Weed Element Occurrence Form (Appendix B)
- Treatment method required
- Incorporating data into local GIS spatial database
- Entering data into National Resource Information System (NRIS) database
- Entering data into FACTS database
- Evaluating success of treatment in subsequent inspections

G. Reporting

A Weed Detection Survey Report will be submitted to the Santa Clara Mojave River District Ranger. If weed introduction and spread has occurred, an interim BAER report will be completed to request eradication funding. Reporting costs are included in figures below.

H. Costs: Weed Detection Surveys for One Year =$43,875.00

Weed detection surveys to determine whether ground disturbing activities related to the Powerhouse Fire have resulted in the expansion of noxious weeds is requested for the first year. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times. If all the target species are detectable in one visit, the actual costs would be lower than displayed below.

Estimated Cost:	
1 GS-11 botanist ($400/day x 5 days)	$ 2,000
4 GS-7 weed technicians ($220/day x 40 days)	$ 35,200
Supplies	$ 1,500
Vehicle FOR ($350/month)	$ 1,050
Vehicle mileage (7500 miles @0.55/mile)	$ 4,125
TOTAL	**$ 43,875**

I. Follow-up Actions

Design and implement follow-up treatments as needed. Plan for integrated weed management and NEPA analysis using non-BAER funding.

APPENDIX AA

USDA Forest Service
Weed Occurrence Form
Region 5 Forest: Angeles District: _____

Species: _____ **Date:** _____ ID confidence ___ % ID Auth: Hickman et al., 1993

Project	Current land use:
Surveyor	Current/potential threats:
Directions to site:	
	Other biota: None
	Existing EO? Yes No # _____
	Entire extent of pop mapped? Y N
	Photographer
Site descript:	Repository
	Vouch spec # Repository
	Look-alike species: None
	Research needs
(circle) **Point Polygon Line**	
GPS Unit: XT GeoEx3 Ipaq1 Ipaq2 Mag # __ Thales Other	Conserv/Mngt concerns
GPS Staff ID:	# _____ **individuals, genets** est. precise

Unique ID #: #____pts/poly4EO	Vigor? vfeeble feeble normal vigor exvirg N/A Method:
Northing: Easting:	(circle) Disease Predation Herbivory None Explain
Elevation (feet):	
Quad name:	Distribution/Density: prominent common scattered patchy rare
T-R-S: T R S ¼ of ¼ of	**Gross (Total) area:** est, precise **Infested** (Weed cover only) **area** :
Slope Min. _____% Max _____%	**Cover: Sp.**_____% Grd_____%
Aspect (°):	
Substrate:	**Phenology** method: est, count
Soil text: sand, loam, silt, clay, other	% seedlings % leaf % bud
Moisture regime: mesic xeric hydric	% flwr %immat frt % mature frt
Soil moisture: dry moist saturated inundated seasonal seepage other	% dispersing seed % senescent
	Treated before: Y N
Horz dist. to H2O vert.	**Method of treatment:**
Light expos: full sun part shade full shade	Fr suc: Exlt Gd Marg Pr Unkn Fair None
Veg series:	Germ suc: Exlt Gd Marg Pr Unkn Fair None
Ass. tree/shrubs:	Repro: Exlt Gd Marg Pr Unkn Fair None
Canopy: _____% Shrub: _____% Forb: _____%	Dispersal: Exlt Gd Marg Pr Unkn Fair None
Assoc plants (include other non-natives):	Estab: Exlt Gd Marg Pr Unkn Fair None
	Veg suc: Exlt Gd Marg Pr Unkn Fair None
	Fl suc: Exlt Gd Marg Pr Unkn Fair None
	General observations
Disturbance:	Condition: Exlt Gd Marg Pr Unkn Fair None
	Quality: Exlt Gd Marg Pr Unkn Fair None
	Defense: Exlt Gd Marg Pr Unkn Fair None
	Rank: Exlt Gd Marg Pr Unkn Fair None
	Viability: Exlt Gd Marg Pr Unkn Fair None

Appendix B

Powerhouse Fire – BAER
Powerhouse Fire Burn Area Emergency Response
Hazmat Team
Joe Gonzales, BAER Hazmat Specialists, ANF
Cliff Johnson, BAER Roads Engineering, ANF
June 15, 2013

Hazardous Materials Site Identification

The following specific hazardous materials sites were identified within the Powerhouse Fire perimeter on the Angeles National Forest. The hazardous materials include sites which pose health and safety concerns.

Road #/ Name: 7N08 Maxwell Truck Trail

1. A large dump of floor tile materials containing asbestos and other debris. Site location in Hazmat Log 6/12/13.
2. A new water tank and burnt equipment along road way may be encroaching on NF lands. Site location address is 43503 Lake Hughes Road.
3. A large truck cooling unit or unknown refrigerator is found over a steep slope. It may roll down slope onto private property.

Heliport: Agua Dulce Air Park 6/13/13, 1000 hours
-Observed what may be a marijuana grow camp site with plants and large area of unknown mine tailings and overcast materials (suspect mercury waste).

Road #/ Name: 6N24 Ruby Canyon Road

1. Two large diameter metal culverts (30 inch by 20 feet long). They are setting along the stream bank and rusting and will cause water pollution. Site location in Hazmat Log 6/13/13.
2. Two large wildlife drinkers made of fiberglass were damaged by the fire and the fibers are breaking apart and are considered a hazmat.
3. An auto parts dump and other trash are being dumped over the road slopes.
4. A large fire-fighting water tank has been damaged by shooters and has a human size opening with dirty water inside. This situation is a public safety.

Road #/ Name: 7N01 Tule Ridge Road

1. At the South End of Lake Hughes Road is a view point for marijuana grown site. Observed site during recon flight. LEO had reported site to the BAER team leader. On 6/15/13, the trails surveyor found the site on the PCT trail and it had a gas bottle with camp debris and signs of mining activity.
2. A large over-side road drain and other metal debris are dumped over a burnt slope.
3. An old abandoned road has pesticide in 5 gallon size cans off a high ridge near the Tule Ridge Road.

Road #/ Name: 7N02 Ruby Cyn / Clearwater at Intersection 6/14/13

1. Eight drums empty and two containing unknown burnt materials on a steep slope less than 200 feet from the stream below.
2. Auto parts, tires and trash dumps at a large turn-out in unburned area, other burnt slopes have debris.

Road #/ Name: 7N02 South Portal Road

1. A large adit with a deep mine tunnel, may be an old graphite mine. Mine opening is safety issue to the public.

2. A large area with mine tailings outside of the burn perimeter.

Lake Hughes Recreation Cabins (Destroyed)

Hazmat: There are a total of 7 cabin sites that were severely burned and destroyed with the possibility of easily mobilized hazardous materials. All cabin sites have high volume wastes or hazardous materials (i.e. Asbestos, Lead, Paints, Propane Tanks and Sewage) and cabins are located near the lake waters. One site includes a damaged septic tank next to the lake. There is a DPW sewer pipe line at the Cabins.

Values at risk include the forest environment, public safety, water quality and other factors. See enclosed Powerhouse BAER Map. Also see enclosed Hazmat Photos report. Other photos are on file.

Joe Gonzales
Hazardous Materials Coordinator
BAER Team Member
Angeles National Forest
(626) 574-5288

Appendix C

BAER ROADS REPORT

POWERHOUSE FIRE, R5-ANF

June, 2013

Cliff Johnson, R5-NRM, 626-574-5237, ctjohnson@fs.fed.us
Andy Ramsey, Angeles National Forest, 626-574-5296, vramsey@fs.fed.us

The objective of this BAER assessment is to determine values and resources at risk due to direct or imminent damage caused by the Powerhouse Fire and to select effective treatments to preserve the integrity of the roads and road embankments and to prevent degradation of drainage channels and watersheds.

I - POTENTIAL VALUES AT RISK

Forest Developed Roads within burn area:

7N07 – Juday Ridge Road
7N07B – Troedel Motorway
7N02 – South Portal Road
7N01 – Tule Ridge Road
6N24 – Ruby/Clearwater
7N05 – Lake Hughes T.T.
7N08 – Maxwell T.T.

Other major roads/facilities within burn area:

San Francisquito Cyn. Road, L.A. County.
Pine Canyon Road, L.A. County
Lake Hughes Road, L.A. County
Willow Springs Road, L.A. County
Elizabeth Lake Cyn. Road, L.A. County
California Aqueduct, State Water Resources

II - RESOURCE CONDITION ASSESSMENT

A. Resource Setting: The resources included within the fire area dispersed recreation facilities, NFS campground, NFS picnic site, several lakes, Special Use cabins, private homes and ranches, several businesses, major power lines, major water transport facilities, and Pacific Crest Trail. Vegetation burned in this fire area provided slope and sediment stability, support for stream channels, roads and adjacent slopes. The NFS roads listed above provide access to most of the resources listed and are the major resource that was surveyed for this report.

B. Findings:
   1. Resource condition post fire: Vegetation adjacent to and above the roads is completely burned. In some cases, partially burned trees and other vegetation has been transported or has fallen into channel courses and inlet structures, onto the road and drainage structures, and retaining walls.
   2. Consequences: Because much of the vegetation adjacent to and above the roads has been completely burned, nearly all of the drainage structures are undersized for the expected increased

runoff of water and debris. Some of the structures have been damaged by rolling or falling debris and plugged by rocks or soil.

II - EMERGENCY DETERMINATION

All of the road drainage structures are located in natural drainage channels or have road dips constructed to these drains. Since highly increased runoff is expected during winter storms, and is concentrated and directed to these channels, it is anticipated that most of these structures will fail and will be lost downhill. With structure failure and loss, most of the adjacent road sections will be severely damaged or completely lost. This increased soil loss will increase the sediment load of downstream channels.

III - TREATMENTS

A. Treatments Types: Replace undersized over side drains & flumes with next size up. Place rock energy dissipaters at some CMP outlets. Install several gabion walls at slumping inlets. Install gabion walls for fill stabilization. Replace fill at washed out drains. Clean plugged inlets and flumes. Conduct storm monitoring to maintain function of drainage structures. Remove slide material as needed. Remove potential hazard trees in construction areas.

B. Objectives: The intent of treatment is to provide and maintain adequate drainage and road related structures for the efficient drainage, maintenance, protection and safe use of the existing NFS road system. This will be done at the least cost for anticipated increased runoff.

C. Treatment Description: Clean or repair those structures that appear to be adequate for anticipated runoff. Install or replace drains at those locations that lack drains or have undersized structures. Install gabions at edge of road or toe of fill that have failed structures at fill slopes that are unstable for anticipated runoff.

D. Treatment Costs:

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POWERHOUSE - ROAD COSTS

Item	Unit	Unit Costs	# of Units	Cost
Install Roadway Dips	Each	$765	13	$9,945
Construct Treated Timber Retaining Wall	SF	$50	2848	$142,400
Install Overside Drains	Each	$2,500	53	$132,500
Install Overside Flume	LF	$75	1490	$111,750
Install Gabion Retaining Wall	Cubic Yards	$200	86	$17,200
Place Backfill Material	Cubic Yards	$45	160	$7,200
Place Energy Dissipater	Cubic Yards	$325	8.8	$2,860
Reset Existing Fume	Lineal Feet	$150	80	$12,000
Remove Drainage Inlet & Starter Section	Lump Sum	$28,000	1	$28,000
Clean Flume	LF	$12	1183	$14,196
Clean Culvert Inlet/Outlet/Catch Basins	Each	$596	20	$11,920
Clean 12-24" Overside Drains and Flumes	LF	$20	480	$9,600
Remove Roadway Dip	ea	$300	2	$600
Slump and slide removal following storms	Each	$33,000	1	$33,000
Hazard tree removal	ea	$700	6	$4,200
Inst. Conc. Inlet Face	Each	$185	4	$740
Repair Inlet	Each	$125	3	$375
Const. Concrete Headwall	C.Y.	$375	2.5	$937.50
Grading with water truck	miles	$1,200	16	$19,200.00
			TOTAL	$558,624
Mobilization				$26,000
Contract Prep. & Admin.				$28,500
				$613,124