Date of Report: 4/12/07

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
[X] 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: Palace

B. Fire Number: AZ-PNF-070025

C. State: AZ

D. County: Yavapai

E. Region: 03

F. Forest: Prescott

G. District: Bradshaw

H. Fire Incident Job Code: P3DAJ0

I. Date Fire Started: 3/13/07

J. Date Fire Contained: 3/19/07

K. Suppression Cost: $320,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):1.25
2. Fireline seeded (miles): 0
3. Other (identify): 0

M. Watershed Number:Upper Hassayampa 1507010301, Black Canyon Creek 1507010203

N. Total Acres Burned:
NFS Acres(989) Other Federal (0) State (0) Private (0)

O. Vegetation Types: Chaparral, Ponderosa Pine

P. Dominant Soils: Lithic Haplustalfs (TES 555), Udic Haplustalfs (TES 540)

Q. Geologic Types: Metamorphic, Granite

R. Miles of Stream Channels by Order or Class: 1.25 ephemeral 1st order

S. Transportation System

Trails: 1.2 wildfire miles .9 prescribe fire miles Roads: .33 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 190 (unburned) 315 (unburned/low) 357 (low) 47 (moderate) 80 (high)

B. Water-Repellent Soil (acres):80

C. Soil Erosion Hazard Rating (acres):
0 (low) 0 (moderate) 989 (high)

D. Erosion Potential: 11.0 tons/acre

E. Sediment Potential: 3810 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 2 yrs.

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

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

D. Design Storm Duration, (hours): NA

E. Design Storm Magnitude, (inches): NA

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

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

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

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Background: The Palace Fire was the result of the Ash Creek Prescribe Burn going outside of the designated treatment area. Approximately 55 acres were burned as part of the prescribed burn and an additional 940 acres were classified as wildfire.

Soils: The following table displays the average erosion rate/ acre which is based on FS WEPP modeling of 30 year return period of precipitation.

	Pre-fire Erosion Rate/ Acre	**Post-fire Erosion Rate/ Acre**
t/acre/yr	5.3	11.0

Low burn severity sites had a minimal loss of vegetative ground cover which was predominantly charred on the surface. The low burn severity sites do not exhibit hydrophobic conditions. The Mixed burn severity classification is a mosiac of low burn severity (70%) and areas unburned (30%). High burn severity sites were limited to south facing slopes within the chaparral ecosystem. The majority of the high burn severity areas vegetative ground cover has been consumed and exhibit moderate hydrophobicity. The moderate burn severity classification represents a mixture of high and low burn severity.

Erosion rates at the low burn severity sites are expected to have a minimal to inmeasurable increase. The high burn severity sites will experience a large acceleration of erosion. However, the large portion of unburned areas within the fire perimeter along with large amounts of low and mixed burn severity will filter and buffer any large influx of sediment from the high burn severity areas. As indicated by FS WEPP modeling, the post fire increase of the average erosion rate (from a landscape scale) is within the range of natural variability and is not expected to pose a threat to life/property and unacceptable degradation of resources.

Mining: Three abandoned and inactive mines were identified in the burn area footprint. Two of these mines, the Kentucky mine (AZMILS ID: 40251233) and the Tom and Dick mine (AZMILS ID: 40251494) are in areas of low burn severity and do not represent values at risk. The third mine, known as the Promoter mine (AZMILS ID: 40251095) is located in the high burn severity area. Consequently, two piles of mining wastes at the Promoter site are likely to be exposed to increased erosion rates.

Two samples of mine wastes were collected from the Promoter mine on March 22, 2007, and shipped for analysis the next day. To quantify the risk to human life and safety, the analytical results were compared to risk management standards for metals at mining sites (BLM Technical Note 390, revised Oct. 2004). The most likely scenario for risk to human health and safety would be exposure to mine wastes mobilized and deposited in Cooks Canyon and subsequently the Hassayampa River, where recreational users such as prospectors or campers could come into contact with contaminated sediments. Contamination from mine wastes could also result in degradation to water quality resources.

Because human health and safety represents the most significant risk from contaminated mine wastes, the standards used for evaluating the analytical data will be the criteria for human campers exposed to stream sediment:

The following table provides analytical results and criteria used for risk determination from mine wastes

Constituent	Standard (mg/kg)	Sample PR-L1 (mg/kg)	Sample PR-U1 (mg/kg)
Arsenic	62	24	310
Cadmium	155	3.1	1.9
Copper	5745	380	940
Lead	1000	82	200
Mercury	46	2.7	0.26
Zinc	46455	170	56

Standards taken from: Ford, K. L., 2004, *Risk management criteria for metals at BLM mining sites*: BLM Technical Note 390 (rev.) 24 p.

Of the constituents analyzed, only arsenic exceeded the applicable standard in the upslope mine waste pile. Mitigating circumstances, however, indicate that this high arsenic value does not constitute an emergency to life, property or resources. Theses circumstances include: 1) the total volume of the upslope tailings pile is estimated at less than 10 yd^3; 2) because of the upslope position in the watershed, any mobilized sediment from this waste pile would likely be diluted prior to reaching a major watercourse; and 3) naturally high arsenic would be expected in the area of the Promoter Mine. Consultation with Arizona On-Scene Coordinator Anne Fischer has determined that the Promoter Mine would not be subject to a reclamation action. Therefore, it is decided that expending further BAER funds and resources at the Promoter Mine would not provide significant benefits, and no additional remedial work is required at this site.

Water Quantity:

The following table displays the average runoff rate/ acre which is based on FS WEPP modeling of 30 year return period of precipitation.

	Pre-fire Runoff/ Acre	Post-fire Runoff/ Acre
Inches	1.8	2.3

From a landscape scale the average increase of runoff/ acre is within the range of natural variation and is not expected to pose a threat to life/property and resource degradation.

Water Quality:
The burn area footprint incorporates portions of two fifth-code watersheds: the Upper Hassayampa River (1507010301) is presently listed as impaired on the State of Arizona draft 303(d) list due to low pH, and is listed as non-attaining for cadmium, copper and zinc. Waste piles at the Promoter Mine, which is located in the Hassayampa watershed, are expected to continue to erode. However, because of small volumes of mobilized sediments and low levels of non-attaining constituents, this is unlikely to adversely affect water quality in the Hassayampa River. The Black Canyon watershed (1507010203) is currently listed as impaired on the draft 303(d) list due to copper and zinc. Pre- and post- fire erosion rates are within the range of natural variations, and are not expected to impact water quality in the Black Canyon watershed (see soils section). Water quality concerns at the Palace Fire, therefore, do not present an emergency to life, property or resources.

Wildlife: The majority of the MSO habitat is located in light burn severity. Unacceptable degradation to wildlife resources is not expected to occur.

Roads and Trails:
The following table displays the routes and trails affiliated with the Palace fire.

ROUTE	NAME	LEVEL/TYPE	WITHIN FIRE PERIMETER
52	Senator	Operation 2 Objective 3	no
82	Bodie Mine	Operation and Objective 2	no
9265R	n/a	Decommissioned	Yes (0.33 mi.)
284	Yankee Doodle Trail	trail	Yes (1.2 mi.)

The drainage area contributing to FS route 52 crossing was subject to a mosaic of unburned and light burn severity. This crossing is expected to be subjected to a minimal or no increase in sediment and peak flow which. Post fire road conditions is not expected to pose a threat to public life and limb or unacceptable degradation to resources.

The drainage area contributing to FS 82 is a high clearance 4X4 road not suited for passenger vehicles and not regularly maintained by Forest Service. The post flow events impacting this road crossings are expected to be minimal. Post fire road conditions is not expected to pose a threat to public life and limb or unacceptable degradation to resources.

FS 9265R is a decommissioned road that is within the fire perimeter which was subjected to a high burn severity. The localized high burn severity drainage impacting this road has the potential to be impacted by floods, increased sediment delivery, falling rocks, and unstable soils. This road does not pose a potential threat to public life and limb or unacceptable degradation to resources because it is decommissioned and closed to vehicular access.

0.9 mile of trail 284 (Yankee Doodle Trail) was within a mixed burn severity. 1.2 mile of the trail was subjected to the prescribe fire and which is outside the scope of this BAER assessment. This trail does not pose a potential threat to public life and limb or unacceptable degradation to resources because it is decommissioned

Heritage Resources: Three previously recorded sites, AR-03-09-03-206 (Palace Station), 03-623 (Orofino Mine), and 03-871 (War Eagle Mine), lie outside the fire perimeter on the Senator Highway (FSR 52). One newly recorded site, AR-03-09-03-875 (Promoter Mine), lies within a severely burned area of the fire. This site is recommended as ineligible to the National Register Historic Places due to absence of diagnostic artifacts and the removal of machinery and the superstructure of a small stamp mill that was present at the site. Post conditions does not pose an unacceptable threat of degradation to heritage resources.

Noxious Weeds: There are currently no known inventoried noxious weed sites within the burned perimeter.

B. Emergency Treatment Objectives:

None prescribed

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

Land **NA** % Channel **NA** % Roads/Trails **NA** % Protection/Safety **NA** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	NA	NA	NA
Channel	NA	NA	NA
Roads/Trails	NA	NA	NA
Protection/Safety	NA	NA	NA

E. Cost of No-Action (Including Loss): **NA**

F. Cost of Selected Alternative (Including Loss): **NA**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: David Moore

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H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments: NA

Channel Treatments: NA

Roads and Trail Treatments: NA

Protection/Safety Treatments: NA

I. **Monitoring Narrative:**

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

No BAER funds have been requested to perform post fire monitoring.

Part VI – Emergency Stabilization Treatments and Source of Funds **Interim #**

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$0	$0		$0		$0	$0
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$0	$0		$0		$0	$0
D. Protection/Safety										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation					$2,650					
soil lab heavy metal analysis				---	$200		$0		$0	$200
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$2,850		$0		$0	$200
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$0	$2,850		**$0**		**$0**	**$200**
Previously approved										
Total for this request				**$0**						

PART VII - APPROVALS

1. */S/ Alan Cyan* 4/12/07
   Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date