USDA-FOREST SERVICE

FS-2500-8

Date of Report: ***June 23, 2011***

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: Arlene

B. Fire Number: AZ-CNF-011054

C. State: AZ

D. County: Santa Cruz

E. Region: 3

F. Forest: Coronado National Forest

G. District: Sierra Vista

H. Fire Incident Job Code: 0305 P3F31Z

I. Date Fire Started: 5-23-2011

J. Date Fire Contained: 5-29-2011

K. Suppression Cost: $1,242,176

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): unknown
2. Fireline seeded (miles): None
3. Other (identify): None

M. Watershed Number: Zorilla #150503010108, Parker Canyon #150503010105, Bodie Canyon #150503010106

N. Total Acres Burned: Total 10,600 NFS Acres (10,183) Other Federal – BLM (0) State (0) Private (416)

O. Vegetation Types: The prominent vegetation type within the fire perimeter consisted of broadleaf evergreen woodlands occurring from 5,000 to 7,000 feet within the fire perimeter. To a lesser extent the fire also included desert grasslands (below 5,000 feet), chaparral communities, and riparian vegetation occurring in the major drainages.

P. Dominant Soils:

Soil Series	Slope (%)	Rock Outcrop (%)	Surface Soil Texture	Rock Fragments (%)	Erosion Hazard Rating	K-Factor	Hydrologic Group	Acres
Casto very gravelly sandy loam,	40	0	Very gravelly sandy loam	45	M	0.10	D	4143.7
Martinez gravelly loam	3	0	Gravelly loam	19	L	0.32	D	2052.3
Bernardino-Hathaway association, rolling	15	0	Gravelly clay loam	19	L	0.17	C	1577.9
White House gravelly loam, 10 to 35 percent slopes	35	0	Gravelly loam	11	M	0.15	C	1265.0

Q. Geologic Types: Geology is dominated by alluvium derived from igneous and sedimentary rock.

R. Miles of Stream Channels by Order or Class: Intermittent Channels = 46

S. Transportation System

Trails: 1 miles
Roads: 34 miles

PART III - WATERSHED CONDITION

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

Soil Burn Severity (Acres)	Acres	Percent
High	0	0%
Moderate	1135.6	10.7%
Low	8780.8	82.8 %
Unburned	683.1	6.4 %
Total	**10,599.5**	

B. Hydrophobic Soils: 1000 acres. Hydrophobic conditions were inconsistent and are expected to exist in approximately 10% of the fire area or less.

C. Soil Erosion Hazard Rating (acres):

Low	4,846.5
Moderate	5,753
High	0

D. Erosion Potential: The erosion hazard rating system used predicts that very few areas will have an increase above natural erosion levels as a result of the fire.

E. Sediment Potential: Sediment potential shown below is an imprtant factor of erosion potential and can be used as a proxy for this fire.

Summary of Sediment Yield to HUC 6 Watersheds and other pourpoint watersheds

Watershed	Area ($Mile^2$)	Pre Fire Sediment ($yd^3/mile^2$)	Post Fire Sediment ($yd^3/mile^2$)	Sediment Increase (x Pre Fire)
1. Parker Canyon	28.3	318	493	55
2. Bodie Canyon	23.8	379	545	44
3. Zorilla	6.6	735	1057	44

Watersheds may include multiple fires. See soils specialists report.

F. Debris Flow Potential: Slopes are low gradien to moderately steep with mostly low and some moderate fire severity. Increased flows from the burned areas may cause increased risk for flooding and low potential for debris flows.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): understory forbs and grasses 2-3 years
overstory oak woodland 7 – 10 years

B. Design Chance of Success, (percent): 90

C. Equivalent Design Recurrence Interval, (years): 5

D. Design Storm Duration, (hours): 0.5

E. Design Storm Magnitude, (inches): 1.62

F. Design Flow, (cubic feet / second/ square mile): 70

G. Estimated Reduction in Infiltration, (percent): 0

H. Adjusted Design Flow, (cfs per square mile): 83

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Arlene Fire started on May 23, 2011 and is approximately 10,600 acres in size. The burned area drains mostly from the northeast to the southwest and into Mexico. The southern end of the burn is on the Mexican border. The watersheds are characterized by gentle to moderate slopes in long, narrow, low relief parallel valleys. No values at risk were identified within the Arlene fire area. Recommend signing all roads accessing the burned area warning of increased hazard during storm events. Recommend notifying NRCS for final risk assessment on private land. The climate is arid overall and precipitation in the fire area is moderate, averaging 19.5 inches per. Rainfall occurs mostly during the summer months with the monsoons when the potential for intense and localized rainfall can occur. Vegetation consists of lowland woodland forest with an overstory dominated by Oak and Mesquite, as well as valley range grasses and scrub. The fire burn severity was mostly low overall with a few areas of moderate or unburned/very low severity.

Summary of Watershed Response

Hydrologic Response: The Arlene Fire has been analyzed by watersheds or pour points at locations in or downstream of the fire area. Watersheds are various sizes and shapes and are dependent on the analysis of the desired outlet or pour point above a value at risk or area of concern. None of these watersheds are expected to have significant increases in post fire water or sediment yield. This is due to the fact that most of the fire had a low burn severity with small pockets of moderate. Larger rain events do have the potential to increase the risk of flooding and sedimentation, though these risks are present with or without the effects of the Arlene fire.

Hydrologic design factors used to analyze the effects of the Arlene fire considered the vegetative recovery period estimated to be 3-5 years; treatment chance of success is around 90%. Storm recurrence interval of 5 years and 30 minutes using NOAA Atlas 14 for 5-year-30-minute precipitation yielded a design storm magnitude of 1.62 inches of rainfall. Estimated reduction in infiltration was based on the percentage of hydrophobic soil in the burn area which was assessed at 0%. Pre-fire design flow was estimated at 70 cubic feet per second per square mile and post fire design flow was estimated at 83 cubic feet per second per square mile.

Erosion Response: Burn severity is primarily low and moderate. Gentle slopes and moderate rock fragment content mitigates erosion. Eroision is expected to be low.

Geologic Response: Fire is located on a geologically stable Paleocene fan terrace, subsequently eroded and lying in a lower valley position. No geohazards were identified..

Values at Risk

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 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**

Life:

Risk Assessment – Based on the estimated watershed response and terrain, the BAER Assessment team determined that there are no significant values at risk as a result of the Arlene Fire. Forest Roads within the fire area have several low water crossings that may receive some deposition that would need to be cleaned off after storm events but are considered low to moderate risk depending on storm intensity and duration.

Probability of Damage or Loss: Unlikely - This determination is due to the minimal change in watershed response. This determination was made based on the minimal change in watershed response.

Magnitude of Consequence: Major

Risk Level: Intermediate- recommend installing signs

Property: Based on the estimated watershed response and terrain, the BAER Assessment team determined that there are no significant values at risk as a result of the Arlene Fire.

Risk Assessment - Private Property

Probability of Damage or Loss: Unlikely

Magnitude of Consequence: Minor. This determination is due to the minimal change in watershed response. This determination was made based on the minimal change in watershed response.

Risk Level: Very Low.

Risk Assessment – Forest Roads

Probability of Damage or Loss: Possible

Magnitude of Consequence: Minor

Risk Level: Low

Water Quality and Quantity: No values at risk. The most noticeable post fire effects on water quality would be increased sediment and ash from the burned area into drainages and waterbodies in and downstream of the fire area. During storm events this will increase turbidity and contribute to pool filling. Due to the low burn severity, water quality and quantity is not expected to be significantly affected as a result of the Arlene Fire (see Hydrology Specialist Report, BAER Assessment Project File).

Threats to Soil Productivity: No values at risk. There is no emergency to soil productivity due to fire-adapted ecosystem, soil type and lack of productive timber stands.

Threats to Cultural Resources: No values at risk.

Threats to Wildlife: The wildlife concerns for the Arlene Fire are: Loss of vegetative cover, foraging habitat.

Risk Assessment – Wildlife

Probability of Damage or Loss: Unlikely

Magnitude of Consequence: Moderate

Risk Level: Low

Threats to Botany: There are no threatened or endangered plants in the fire area. There is no designated critical habitat for plants in the fire area

Native Vegetation Recovery: Ecosystem stability of native plant communities in the Coronado NF is at risk.There is a high possibility of damage to the native plant community from noxious weed invasion. If new infestations are established the magnitude of the consequences would be moderate-to-major. The fire created conditions conducive to the spread of the noxious weeds known to be within or near the fire area. The invasion of exotic vegetation, especially grasses and annual forbs as a result of fires reduces or displaces native plant species, thus impacting native vegetative recovery. Suppression activities have likely vectored noxious weed seed from one or more locations. Vehicles and equipment were not washed prior to entering fire area.

B. Emergency Treatment Objectives

No treatments recommended other than Noxious weed detection surveys and protection of life and property by signing roads and stream access areas to warn forest users of potential threats during storm events. Notify NRCS to evaluate private property.

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

Land __ % Channel -- % Roads/Trails ___ % Protection/Safety ___ %

D.Probability of Treatment Success

	1	3	5
Land	n/a	n/a	n/a
Channel	n/a	n/a	n/a
Roads/Trails	n/a	n/a	n/a
Protection/Safety	n/a	n/a	n/a

E. Cost of No-Action (Including Loss): N/A

F. Cost of Selected Alternative (Including Loss): N/A

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[ ] Geology	[ ] Range	[X] Public Information
[ ] Forestry	[X] Wildlife	[ ] Fire Mgmt.	[X] Engineering	[X] BAER coordinator
[ ] Contracting	[ ] Ecology	[X] Botany	[ ] Archaeology	[ ] NRCS
[ ] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS	[X} Logistics

Team Leader: Randy Westmoreland
Email: rwestmoreland@fs.fed.us Phone: 530-306-0349 FAX:

Core Team Members:

- Eric Nicita – Soil Scientist
- Curtis Kvamme – Soil Scientist (T)
- Mary Moore – Hydrologist
- Jennifer Bridgewater – Hydrologist
- Jim Schmidt – GIS
- Jason Dierberg – GIS (T)
- Tom Goheen - Logistics
- Marcie Baumbach – Wildlife
- Mike Friend - Botany
- Tim Merten – Roads Engineer
- Rebeca Franco - Information
- Bob Ramirez – Information
- Dave Young - BAER Coordinator

H. **Treatment Narrative**
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
Noxious weed detection surveys are recommended. Common invasives to the area are present around the periphery of the fire, but are not currently present in much of the fire area; suppression activities have the potential to have spread invasive seeds to new areas. Reference the specialist report for species of concern and the recommended detection survey plan.

Channel Treatments

None recommended.

Road and Trail Treatments

Road:

Install flash flood warning signs

I. Monitoring Narrative

None

This report is an initial funding request based on a rapid assessment. If additonal treatment needs are identified through more site specific on the ground investigation in cooperation with interested agencies, 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

			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										
Warning signs		300	8	$2,400	$0		$0		$0	$2,400
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$2,400	$0		$0		$0	$2,400
E. BAER Evaluation										
				---			$0		$0	$0
Insert new items above this line!				---	$30,860		$0		$0	$30,860
Subtotal Evaluation				---	$30,860		$0		$0	$30,860
F. Monitoring										
Noxious detection		7920	1	$7,920	$0		$0		$0	$7,920
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$7,920	$0		$0		$0	$7,920
G. Totals				$10,320	$30,860		**$0**		**$0**	**$41,180**
Previously approved										
Total for this request				**$10,320**						

PART VII - APPROVALS

1. */s/ Jim Upchurch* — 7/22/2011
   Forest Supervisor (signature) — Date

2. */s/* C. L. Newman, Jr. — 7/29/2011
   Regional Forester (signature) — Date

Value at Risk Tool calculations were not performed due to lack of VARs and treatments.