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FS-2500-8 (7/00)

Date of Report: 7/15/05

DIAMOND VALLEY BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[**X**] 1. Funding request for estimated WFSU-SULT funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[**X**] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: Diamond Valley

B. Fire Number: PDBW6J

C. State: Utah

D. County: Washington

E. Region: Intermountain

F. Forest: Dixie

G. District: Pine Valley

H. Date Fire Started: June 28, 2005

I. Date Fire Contained: July 5, 2005

J. Suppression Cost: $2,000,000

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline and Dozerline waterbarred and rehabilitated (miles): 5.5
2. Fireline and Dozerline seeded (miles): 4.5

L. Watershed Number:

M. Total Acres Burned: 7,433
NFS Acres(3,649) BLM (3,086) State (603) Private (95)

N. Vegetation Types: Pinyon-Juniper with mixed shrubs.

O. Dominant Soils: The soil are dominanted by shallow soils with 50 percent or more rock fragments intermixed with rock outcrop.

P. Geologic Types: Sandstone and shales.

Q. Miles of Stream Channels by Order: 10.7 miles of Order 1, 7.1 miles of Order 2 and 3 miles of Order 3 stream channels.

R. Transportation System

Trails: 0 miles Roads: 19 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 7314 (low and unburned) 119 (moderate) 0 (high)

B. Water-Repellent Soil (acres): 0

C. Soil Erosion Hazard Rating (acres):
1830 (low) 5484 (moderate) __ (high)

D. Erosion Potential: 0.5 tons/acre

E. Sediment Potential: 50 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5

B. Design Chance of Success, (percent): 50

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 0.25 (15 minute)

E. Design Storm Magnitude, (inches): .63

F. Design Flow, (cubic feet / second/ square mile): 3398

G. Estimated Reduction in Infiltration, (percent): 20

H. Adjusted Design Flow, (cfs per square mile): 300

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Threats to Property and Human Life:

Threats to Human Life

More than 70 percent of the Halfway Wash (HUC6) watershed above the Twist Hollow/Highway 18 crossing has been consumed by the fire. This drainage leads directly through St. George City and into the Santa Clara River and is adjacent to multiple housing tracts and parks. Due to anticipated monsonal flow (late July to early September) this area is subject to high intensity short duratiion storms that could effect life safety. Land treatments (seeding, mulching) would not be effective in the short term, but a proper warning with a

precipitation monitoring early dectection system would be an effective method to notify downstream occupants of potential hazards.

Threats to Road Infrastructure
Road drainage was evaluated on Forest Road 031 and 901 to determine if they can function with anticipated increased flows. 19 rolling dips will need to be re-enforced for anticipated post fire hydrologic events associated with the BAER effort.

Threats to Unacceptable Resource Degradation:
ATV encroachment and other off road travel is a concern to resource degradation and vegetative recovery; it is recommended that 10 signs be placed along critical resource areas along the FS Road 30901, 30888, 30301 to prevent unacceptable degradation. The signage would keep ATV traffic away from sensitive resources and would help educate and notify forest users of potential excessive degradation to burned watersheds.

The vegetative recovery of the Diamond Valley fire is currently at risk along 2 miles of boundary between NFS and BLM. The NFS lands adjacent to BLM property have had their allotments retired but the BLM allotments are active. The threat of slow vegetative recovery on NFS lands with no barriers to prevent grazing on NFS land will restrict recovery on these burned watershed. It is recommended that 2 miles of temporary fence be built on the boundary to prevent the over utilization of the initial vegeative recovery. Currently this treatment is being addressed with the BLM to determine if they can fund this with their emergency stabilization program.

Threats of Noxious Weeds and Invasive Plant Invasion:
To determine the need for future treatments, monitoring will be conducted to document if increased noxious weed invasion is occurring within the wildfire perimeter. During the fire suppression activities fire transportation equipment and engines utilized areas near Diamond Valley area where noxious weeds are present. Monitoring will begin in fiscal year 2006.

B. Emergency Treatment Objectives:

The primary purpose of the proposed emergency rehabilitation is to take prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to unacceptable resource degradation, property and human life and noxious weeds and invasive plants. The emergency treatments being recommended by the Diamond Valley BAER Team are specifically designed to achieve the following results.

1) Provide for public safety (road and flood hazard identification) and promote fire recovery by communicating the post fire hazards to the public.

2) Limit colonization and/or expansion of noxious weeds and invasive plants species onto National Forest System lands.

3) To assist in the natural vegetative recovery of burned watersheds.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land **85** % Channel ___ % Roads **75** % Other ___ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90%	95%	95%
Roads	90%	95%	95%

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

Value at Risk	Estimated Cost
Health/Safety and Property Protection downstream on Halfway Wash Watershed	$3,500,000
Damage to Roads	$90,000
Noxious Weed Encroachment	$364,000
ATV damage to Watershed (rutting, vegetative trampling)	$1,820,000
Total	**$5,774,000**

F. Cost of Selected Alternative:(Including Loss); The treatment of the rolling dips drainage improvements has a 25% chance of failure from slow implementation or exceedingly high precipitation; The estimated possible loss would be $22,500 for supplemental road repair plus the treatment cost of $4,047. Health/Safety and property protection will only mitgate potentially 25% of property damage that could occur; thus the loss could be as high as $2,625,000 and $7,000 for the early detection system. The signage to prevent potential ATV damage is estimated at 90% effective in deterring use on burned landscape. This would possibly expose 364 acres of to rutting, compaction and vegetative trampling with a cost of $500/acre to repair the damage. The potential total cost of ATV damge would be $182,000 from damages plus $1,000 for signage. The noxoius weed monitoring detects typically 70% of the initial weed locations; 30% of the burned areas has a potential of weed expansion. Typically it cost $100 an acre to treat noxoius weeds and for the 1,092 acres at risk (3,640 acres with 30% potential of noxoius weed expansion) would potentially cost $109,200 plus $900 for monitoring.

Treatments/Monitoring Selected	Estimated Cost
Rolling Dip Road Drainage Improvements	$26,547
Early Detection Rainfall Warning System	$2,632,000
ATV signage for prevention of resource damage	$183,000
Noxoius Weed Monitoring	$110,100
Total	**$2,768,647**

G. Skills Represented on Burned-Area Survey Team:

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

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H. **Treatment Narrative:**

Roads and Trail Treatments:

ATV signage for prevention of resource damage.

Off-Road (ATV) encroachment and other off road travel is a concern in this area. Signage will be placed at critical resource areas to prevent unacceptable degradation to the watershed. The signage proposed would help educate and notify forest users of potential excessive degradation to burned watersheds.

Example of ATV (Off-Road) signs:

ATTENTION: OHV RIDERS

This OHV trail is open for your recreation pleasure.
Please stay on the designated trial.

The immediate area off the trail is closed for burned area recovery.

Riding off the trail is a violation of Federal regulations and

Road Drainage
7.8 miles of road was examined in the field by the road engineer to evaluate road drainage and considered within the observations were: burn severity, basin area, soil type, basin terrain, potential storm intensity, and vegetative type/composition. 17 road dips are needed to be rebuilt based upon expected flow and two additional dips will be needed were excessive erosion is predicted.

Early Warning Rainfall Detection System
An early warning system will be installed to notify local residents when the potential is high for flood or debris flow events originating from the burn area. The detection device will send a signal to the local emergency agency of which will assume responsibility for notifying local residents of the potential danger. The device may be an existing available RAWS station or a newly purchased early warning system capable of remotely notifying the emergency agency. An agreement will be made between the FS and the local emergency agency on who has authority for implementation and maintenance.

I. **Monitoring Narrative:**

Monitoring will begin in fiscal year 2006.

A detailed monitoring plan will be submitted as a separate document to the Regional BAER coordinator.

Noxious Weed and Invasive Plant Monitoring
Monitor the location of the known sites and likely sites for new infestations and implement control actions as specified in the Noxious Weed Amendment to the Dixie Forest Plan (2000). Randy Russell (Pine Valley Range Conservationist) will be responsible for this monitoring effort.

Diamond Valley BAER
Noxious Weed Monitoring

OBJECTIVE: Monitor noxious weeds the Diamond Valley fire perimeter to prevent an outbreak.

ITEM TO MONITOR: Presence and noxoius weed within the burn perimeter.

TYPE OF MONITORING: Site visit/occular

METHODS/PARAMETERS: Visit known location of noxoius weeds. Grid exam in burned areas and along road corridors.

FREQUENCY/DURATION: FY06.

PROJECTED COSTS: $900.00

REPORTING PROCEDURES: Annual Diamond Valley BAER Monitoring Report

RESPONSIBILITY: Randy Russell, Range Conservationist

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

Line Items	Units	Unit Cost	# of Units	WFSU SULT $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
Early Warning Rainfall Detection System	each	7,000	1	$7,000	$0		$0		$0	$7,000
				$0	$0		$0		$0	$0
				$0	$0					
				$0	$0		$0		$0	$0
Subtotal Land Treatments				$7,000	$0		$0		$0	$7,000
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Signage	signs	100	10	$1,000	$0		$0		$0	$1,000
Rolling Dip Drainage Improvements	each	213	19	$4,047	$0		$0		$0	$4,047
				$0	$0		$0		$0	$0
Subtotal Road & Trails				$5,047	$0		$0		$0	$5,047
D. Structures										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
BAER Assesment	days	300	20	$6,000	$0		$0		$0	$6,000
				$0	$0					
Subtotal Evaluation				$6,000	$0		$0		$0	$6,000
F. Monitoring										
				$0	$0		$0		$0	$0
				$0	$0					
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				**$18,047**	**$0**		**$0**		**$0**	**$18,047**

PART VII - APPROVALS

1. /s/ Robert A. Russell_____ 7/18/2005_____
   Forest Supervisor (signature) Date

2. /s/ William P. LeVere for____ 7/20/05_____
   Regional Forester (signature) Date