

Date of Report: November 16, 2000

**BURNED-AREA REPORT
(Reference FSH 2509.13)****PART I - TYPE OF REQUEST****A. Type of Report**

- ☐ 1. Funding request for estimated WFSU-FW22 funds
☒ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

B. Type of Action

- ☐ 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 and design analysis
 ☒ Status of accomplishments to date
☐ 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTIONA. Fire Name: Vivaesh

B. Fire Number: NM-SNF-0068

C. State: NMD. County: San MiguelE. Region: Southwest

F. Forest: Santa Fe

G. District: Pecos/Las VegasH. Date Fire Started: 5/29/00

I. Date Fire Controlled:

J. Suppression Cost: 8 mm to date

K. Fire Suppression Damages Repaired with -PF12 Funds

1. Fireline waterbarred (miles):
2. Fireline seeded (miles):
3. Other (identify):

L. Watershed Number: 13060001072M. NFS Acres Burned: 25491Total Acres Burned: 28283Other ownership type: () State () BLM (☒) PVT () ()

N. Vegetation Types: Spruce Fir (Pien, Ablaa), Mixed Conifer (Abco, Psmeg, Potr, Pist, Pipo), Ponderosa pine (Pipos, Quga), Riparian, grassland

O. Dominant Soils: Typic Cryoboralfs, Typic Dystrochrepts, & Dystric CryochreptsP. Geologic Types: Permian sedimentaries & Precambrian granites

Q. Miles of Stream Channels by Order: 1st Order = 200 miles; 2nd Order = 150 miles; 3rd Order = 100 miles;
4th Order = 39 miles; 5th Order = 11 miles

R. Transportation System

Trails: 19 miles Roads: 115 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 11769 (low) 3204 (moderate) 14044 (high)

B. Water-Repellent Soil (acres): 15646

C. Soil Erosion Hazard Rating (acres):
0 (low) 10893 (moderate) 18125 (high)

D. Erosion Potential: 30 tons/acre

E. Sediment Potential: 1284 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 5 years

B. Design Chance of Success: 90 percent

C. Equivalent Design Recurrence Interval: 25 years

D. Design Storm Duration: 1 hours

E. Design Storm Magnitude: 1.7 inches

F. Design Flow: 3 cubic feet per second per square mile

G. Estimated Reduction in Infiltration: 54 percent

H. Adjusted Design Flow: 74 cubic feet per second per square mile

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

The Viveash Fire burned over 28,000 acres within the Cow, Bull and Gallinas Watersheds in northern New Mexico. This fuel driven fire occurred at elevations ranging from 7200 to 11661 feet within the ponderosa pine, mixed conifer and spruce/fir forests. Approximately 48% of the area was high severity burn. There was a total loss of canopy and ground cover, resulting in 90% hydrophobic soils within high severity burn areas. The area included both private and national forest lands. Portions of the landscape are valley plains with perennial streams that are cold water fisheries. Most of the burned topography is steep and broken. Homes also occur in low lying positions on the landscape. The risk for future impacts to private land owners is great and high storm flows are predicted in the near future. For additional information see Burned Area Emergency Rehabilitation Report, Viveash Fire, Santa Fe National Forest, June, 2000.

B. Emergency Treatment Objectives:

The majority of private land is in valley plains and downslope of the high burn severity areas. There is potential for flooding and additional degradation, posing great risk to human safety and property. Treatments prescribed will mitigate accelerated runoff, soil loss and sedimentation to perennial streams and valley plains. Safety measures such as an early warning device, road maintenance, and road patrols will help reduce risk to private property during peak storm flows. Implementation and effectiveness monitoring will ensure treatments prescribed are effective in establishing stable watershed conditions in the future.

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

Land 95 % Channel 20 % Roads 100 % Other 70 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	40	80	90
Channel	60	60	80
Roads	90	90	90
Other	70	80	80

E. Cost of No-Action (Including Loss): The cost of the no action alternative is estimated using the loss of capital improvements on private land not including losses to natural resources. This cost is estimated at \$5,650,000.

F. Cost of Selected Alternative (Including Loss): Cost of the selected alternative not including losses to natural resources is \$470,718.

G. Skills Represented on Burned-Area Survey Team: Soil Scientists, Hydrologists, Wildlife Biology, Watershed Specialist, Archeology, Recreation/Lands, Forestry, and GIS Specialists.

<input type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range	<input type="checkbox"/>
<input checked="" type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering	<input type="checkbox"/>
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/>

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H. Treatment Narrative (See Exhibit A for treatment locations):

1. **Erosion Seeding.** A mixture of annual rye grass, slender wheatgrass and cereal barley will be applied to the severely burned areas to increase the effective ground cover and reduce the potential for erosion. The application rate is 15 lbs/ac. The grasses were selected for short and long term protection. Annual rye and cereal barley are sterile, short duration, non-native species that will provide quick protection to the burned area while fading out in several years. Slender wheatgrass is a native species that will provide additional short and long term protection. Mountain brome was requested but not available.
2. **Log Erosion Barriers.** This treatment is focused on adjacent sideslopes of first and second order stream channels of main perennial streams. LEBs will be used to stabilize relatively steep and moderately steep slopes. These slopes are without overstory canopy cover and ground cover, and are considered to have a high potential for surface runoff, erosion, and mass failure. The treatment will aid in protecting downslope private land from further degradation and impacts. Approximate Costs including labor: \$86,400
3. **Contour Tree Felling.** This treatment is targeted for steep to very steep slopes of high burn severity adjacent to private land and on escarpments above perennial stream courses. This will aid in reducing runoff, soil erosion and debris from moving downslope onto private land and into perennial streams. This treatment is important because it will stabilize steep slopes and aid in preventing sediment and debris from clogging channels and filling ponds. Approximate Cost: \$6,300
4. **Hazard Tree Falling.** This treatment is associated with reducing the risk to the public and Forest Service from the danger of hazard trees adjacent to private land, along roads, and along streams. This treatment is necessary to ensure the safety of all people who travel and work in and around high burn severity areas where snags pose a threat to the public and in accessible areas. Approximate Cost: \$36,400
5. **Culvert Resizing.** Replacement of undersized culverts is necessary to handle increased flows resulting from high severity burned areas. By replacing the culverts runoff will stay in channel and not overflow into the roadway causing additional damage. Approximate Cost: \$12,000
6. **BAER Evaluation.** Implementation monitoring and effectiveness monitoring will be conducted for three years to ensure that treatments were successful and watershed conditions improve over time. Specific monitoring objectives, methods and expected results are outlined in Chapter VI of the BAER Report and the specialists reports contained within the appendices. Approximate Costs:

Resources	Year 1	Year 2	Year 3
Vegetation and erosion control	6,680	5,180	5,180
Archeological rehab/stabilization	32,834	0	0
Trails	<u>6,940</u>	<u>6,940</u>	<u>0</u>
TOTALS	\$56,814	\$23,980	\$5,180
7. **Straw Wattles.** This treatment is prescribed for open mountain sideslopes and terraces of valley plains along drainages and meadows. The purpose for this treatment is to slow and retard runoff from upslope positions with steeper gradients. The treatment is necessary to protect perennial streams which are considered cold water fisheries. Approximate Cost=\$43,680
8. **Sign.** Five signs are needed along roadway entrances within the Cow and Bull Creek Watersheds. Due to the potential for serious flash flooding the public must be aware of the risk, signs will alert travelers about the hazards and awareness necessary while traveling within the watershed. Approximate Cost: Signs = \$1000 Labor=\$500 Total=\$1500
9. **Road Drainage and Storm Maintenance.** This treatment is designed to maintain roads following storm events. Primary and secondary roads within high burn severity areas are subject to increased

runoff and erosion due to loss of canopy cover and run-on from adjacent side slopes. This treatment is necessary to maintain safe access and prevent degradation of private land within valley plains. Approximate Cost: \$6875

- 10. Drain/waterbar Trails.** Trails within the burn perimeter of the fire are susceptible to increased runoff and erosion. Overstory cover that protected the trail and ground cover within the trails were destroyed. This loss of cover has left the trails vulnerable to runoff and erosion. They will also act as conduits and channel flow causing additional entrenchment and downcutting. Increase flow within trails will result in deposition in areas frequented by recreationists, possibly creating a safety hazard. Waterbars and drainage features will mitigate potential on-site and off-site impacts. Approximate Cost: Materials/Tools = \$4700 Labor=\$8500 Total=\$13,200
- 11. Grade Control (logs):** This treatment is specific to ephemeral first order drainages that connect to perennial streams with cold water fisheries. Stabilization of these drainages is essential because of upslope threats from high severity burned areas. These threats include increased runoff, erosion and sedimentation. Presently, these ephemeral systems contain large quantities of stored sediment. Increased flow from adjacent sideslopes increases the potential for the movement of the stored sediment downstream and into perennial waters. Approximate Costs: Materials=\$25,250 Labor/Equipment=\$36,625 Total=\$61,875
- 12. Erosion Matting and Straw Bales.** This treatment is targeted for the protection and stabilization of archeological sites. The strawbales will be used for protecting the sites from upslope overland flow and sedimentation. The excelsior matting will be placed on the site to protect artifacts from rain drop impacts and sheet erosion due to the loss of overstory cover and ground cover within the burned area. Protection of these sites is warranted due to their intrinsic value and significance. Approximate Costs: Materials=\$18,030 Labor=\$24,520 Total=\$42,550
- 13. Hand Seeding and Scarification.** This treatment is targeted to high severity burned areas adjacent to private land. The purpose for this seeding is to augment the aerial seeding to ensure the success of revegetation of the burned area. Additional seeding will increase the success and survival of this effort to mitigate potential runoff and erosion of forest land onto private land. Approximate Costs: Seed=\$18,000 Labor=\$2,520 Transportation=\$2000 Total=22,520
- 14. Early Warning Device.** An early warning device will be installed at the head of Cow Creek Watershed or Elk Creek Subwatershed. Both watersheds have significant areas of high severity burned acres. It is predicted that the stormflow from a precipitation event will increase runoff approximately 23 fold and create hazardous conditions for local residents. The early warning system will alert residents to evacuate low lying areas when precipitation events exceed a 25 year 1 hour quantity. This instrument will ensure the awareness and safety of residents within the watershed.

PART VI - EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS
BY LAND OWNERSHIP

Line Items	Units	Unit Cost \$	NFS Lands			Other Lands		All
			Number of Units	WFSU-SULT \$	Other \$ -----	Number of Units	Fed \$ --- EWP-	Total \$

A. Land Treatments

1. Aerial Seeding	Acres	17.04	15400	262,486				262,489
2. Log Erosion Barriers	Acres	1174	300	352,200		29	34,046	386,246
3. Contour Tree Felling	Acres	840	10	8,400		16	13,440	21,840
4. Scarification/Fencing	Acres					174	2958	2,958
5. Straw Wattles	Acres	3058	50	152,900				152,900
6. Hazard Tree Removal	Acres	560	182	101,920		155	12183	114,103
7. Hand Seeding and Scarification	Acres	29	1200	34,800				34,800

B. Channel Treatments

1. Trash Racks	Miles	21793	1.5	32,690				32,690
2. Jack Piles	Miles	12259	2	24,518				24,518
3. Directional Felling	Miles	4088	4	16,352				16,352

C. Roads and Trails

1. Drain/Waterbar Trails	Miles	3360	11	36,960		.4	1,344	38,304
2. Resize Culverts	Each	4000	11	44,000		1	4,000	48,000
3. Road/Storm Maintenance	Miles	6000	50	300,000				300,000
4. Road Patrol	Miles	125	55	6,875				6,875
5. Bridge Protection	Each	5000	3	15,000				15,000

D. Structures

1. Signs	Each	300	5	1,500				1,500
2. Access Gates	Each	1500	2	3,000				3,000
2. Early Warning Device	Gage	22K	1	22,000				22,000

E. BAER Evaluation/Administrative Support

1. BAER Team Survey				50,000				50,000
2. Administration @ 10%				5,000				5,000
3. Evaluation	Year	5000	2	10,000				10,000

F. Totals				1480600			67971	1548571
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PART VII - APPROVALS

- /s/ Leonard Atencio
Forest Supervisor (signature)

1 December 2000
Date
- _____
Regional Forester (signature)

Date