

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
☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 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: Coffee Pot B. Fire Number: UT-MLF-000131
C. State: Utah D. County: Utah County
E. Region: 4 F. Forest: Manti-La Sal
G. District: Price, administered by Sanpete H. Fire Incident Job Code: P4FUU6
I. Date Fire Started: 7/18/2010 J. Date Fire Contained: not yet contained
K. Suppression Cost: \$1,200,000
L. Fire Suppression Damages Repaired with Suppression Funds
 N/A
M. Watershed Number:
 HUC6 (160202020204) Middle Thistle
 HUC6 (160202020106) Lake Fork
N. Total Acres Burned: _____
 NFS Acres(**1986**) Other Federal () State () Private ()

O. Vegetation Types:

The elevation of the burned area varies from 6200 feet to 8500 feet resulting in a wide variety of vegetation types. However the predominant vegetative covers are as follows;

P. Vegetative communities within the Coffee Pot burned area.

Community Type	Acres
Aspen Mixed Conifer	36
Big Mountain Sagebrush	4
Douglas-fir Forest	696
High Mountain Brush	93
Mountain Brush	145
Oakbrush	678
Perennial Forb Land (mid to low elevation)	7
Perennial Grassland (low elevation)	28
Perennial Wetland or Meadow	18
Rocky Mountain Juniper Woodland	198
True Mountain Mahogany	16
Utah Juniper Woodland	9
White Fir Forest	58
Total	1986

Q. Dominant Soils:

Soils are mapped by the Manti-La Sal National Forest. All soil mapping units for the Coffee Pot Fire area are documented in UT645 Soil Survey for the Manti-La Sal National Forest, Parts of Sanpete and Emery Counties. Dominate soils affected include soil mapping units include:

Coffee Pot Soils Map Unit by
acres

Soil Map Unit	Sum of Acres	% of Area
145	1,054	53
145A	69	4
145B	204	10
223	659	33
Grand Total	1,986	100

Depending on location within the area, soil textures are derived from:

Coffee Pot Fire Soil Map Units

Soil Map Unit	Landform	Geologic Material	Geologic Formation	Soil Texture (% of SMU)
145	Steep complex mountain slopes and canyons	Sandstone, shale, and conglomerate	North Horn	VGR VCB L or SiL (50%) GR CB L (35%)
145A	Steep complex mountain slopes and canyons	Sandstone, shale, and conglomerate	North Horn	GR VGR L (40%) GR VGR CB VCB L or SiCL (30%) L or GR L (20%)
145B	Steep complex mountain slopes and canyons	Sandstone, shale, and conglomerate	North Horn	L, GR CB L (35%) VGR VCB L or SL (30%) GR CB L (20%)
223	Complex mountain slopes and canyons	Sandstone, shale, and conglomerate	North Horn	GR VGR L (55%) GR VGR CB VCB L or SiCL(30%)

R. Geologic Types:

The fire is located within North Horn Formation (Paleocene and Upper Cretaceous). This geologic unit consists of TERTIARY AND MESOZOIC SEDIMENTARY ROCKS of red to reddish-brown mudstone, claystone, sandstone, conglomeratic sandstone, conglomerate, and minor limestone. Mudstone is thick bedded to massive; sandstone varies from thin to thick bedded, commonly cross-bedded, and is fine to medium grained. Limestone beds are thin and dense. This geologic formation is unstable and is marked by many slumps, landslides, and earthflows. The unit ranges in thickness from about 500 to 3,000 feet (150-915 m).

S. Miles of Stream Channels by Order or Class:

First Class: 2.9 miles intermittent

Second Class: 0 miles

S. Transportation System

Trails: 1.9 miles

Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 977 (low/unburned) 873 (moderate) 136 (high)

Coffee Pot Fire Burn Severity by Acres

Burn Severity	Sum of Acres	% of Acres
high	136	7
moderate	873	44
light	573	29
unburned or light	404	20
Grand Total	1986	100

B. Water-Repellent Soil (acres): 288

C. High Soil Erosion Hazard Rating (acres): 1,516 acres
259 (unburned) 331 (low severity) 795 (moderate severity) 131 (high severity)

D. Erosion Potential: 12 tons/acre

E. Sediment Potential: 6,515 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period, (years): 3-5
(for dominant veg Gambel Oak and Mnt Brush; grasses, forbs and Mnt Brush in PJ community and Timber)

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years): 2

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 0.62

F. Design Flow, (cubic feet / second/ square mile): See Pre and Post Fire Stream Flow table

G. Estimated Reduction in Infiltration, (percent): 5

H. Adjusted Design Flow, (cfs per square mile): See Pre and Post Fire Stream Flow table

Pre and Post Fire Stream Flows

Drainage	Area (mi ²)	Peak Flow Interval (yr)	Pre-Fire Stream Flow (cfs/mi ²)	Post-Fire Stream Flow (cfs/mile ²)	Percent Increase
Lake Fork	37.3	2	1.5	1.8	20%
		5	3.3	3.8	15%
Dry Creek	8.3	2	3.5	3.6	3%
		5	7.7	8.0	4%

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The following values were identified by the BAER team: Eagles Landing subdivision and infrastructure; Hwy 89; private lands which include Pines Valley Ranch, various ranches, homes, barns, sheds, access roads on the private property; and natural resource values, principally soil productivity within high erosion burned timber areas.

Background: The Coffee Pot Fire started on July 18, 2010 from lightning. The Coffee Pot Fire has burned roughly 2000 acres of NFS lands. The fire burned predominantly in a mountain brush/forested setting (Douglas-fir/mixed conifer and oakbrush, maple, PJ), mostly at moderate to low intensity with approximately 50-75 acres of high soil burn severity (SBS). The fire behavior can be characterized as patchy with modest runs on 9/24/2010 (635 acres) and 10/1/2010 (372 acres) resulting in areas where the fire took the entire canopy and areas of under burning in the forested stands within the fire perimeter. Higher SBS was observed where fuels increased fire residence time, and in locations with increased concentrations of downed woody debris. *The fire intensity and burn severity do not result in emergency watershed conditions with increased risks to human life and safety, or property. However, the fire does result in an emergency watershed condition that threatens watershed-soil productivity, which is an important natural resource.* With respect to natural resources, there are 35 acres with threats to soil and water resources. Infestations of noxious weeds exist in the area surrounding the fire and noxious weeds are known to exist within the burned area. Noxious weeds occur at within recreation facilities, along roads and trails, and sporadically throughout the vegetation. Invasive species do occur on NFS lands adjacent to the fire, primarily at the recreation sites and sporadically along designated travel routes that were used in support of fire suppression operations.

Potential impacts to the watersheds from the burned areas of the Coffee Pot Fire include increased runoff rates, causing erosion, thus sediment, and debris transport. This creates a future concern for roads, culverts, bridges, and channels along the drainage paths of the burned watersheds in that they may be plugged, overtopped or washed away more frequently than experienced when the watershed was in its pre-fire condition. These impacts may occur over time, since increased debris transport cause changes to flow characteristics of the stream channels involved.

A similar fire, the 2009 Lake Fork Fire started on July 2, 2009 from lightning. The Lake Fork fire occurred in similar geology, soil and vegetation as the Coffee Pot fire. In mid September 2009, on the Lake Fork Fire there were two storm events (2-in/hr and 1-in/hr), which resulted in high hillslope runoff rates, high soil erosion, flashfloods, and debris flows. Within the high burn severity area, nearly an inch of topsoil was lost from sheet flow and rilling. The moderate burn severity areas experienced high sheet flow with some topsoil loss. Both events resulted in flashfloods, debris flows and high sedimentation rates in most drainageways below moderate and high burn severity hillslopes. Most drainageways are now scoured and have a high sediment load. Affected hillslopes will continue to experience high soil erosion, with accompanying mud-debris flows within drainages and streams below the burn area with future storm events. The Lake Fork polygon adjoins the Coffee Pot Fire polygon on the east flank. Potential runoff events on the Coffee Pot fire are expected to be similar to the Lake Fork fire runoff events.

A reduction in the short-term soil loss is critical for maintaining longterm soil productivity and future protection of the watershed and identified values at risk. Private lands outside the forest boundary are at continued risk for flooding, channel entrenchment and damage to irrigation systems, roads, homes, ranches, sheds, barns and other improvements. There is a concern for public safety from flash floods and debris flows within and outside the Forest boundary.

Hwy 89 is designated as Utah's Heritage highway. This designated highway runs from Thistle Junction and passes to the west below the burn area in Utah County. The highway is an important by-way for the area for access to the Wasatch Front, for commuters, and is actively promoted for tourism. This road has already been impacted from the storm events which resulted in mud/debris flows from the burn area covering the road and partially plugging culverts.

B. Emergency Treatment Objectives:

- Reduce hillslope runoff from moderately steep to very steep source areas in several, upper watersheds that have high and moderate burn severity conditions. Reduce further damage and help mitigate flash flood and debris flow impacts to identified values at risk. Reduce soil erosion and help protect soil productivity. Soils within these locations have high to moderate soil hydrophobicity, and have already experienced loss of topsoil from sheet flow and rilling during several storm events.

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

Land 80 % Channel % Roads/Trails 90 % Protection/Safety 80 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
WoodStraw with PAM-12	80	80	90
PAM-12	60	70	80
Channel			
N/A			
Roads/Trails	80	80	90
N/A			
Protection/Safety	50	60	70
N/A			

E. Cost of No-Action (Including Loss): \$214,880

F. Cost of selected treatments (Including Loss): \$138,788

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Mat Meccariello (trainee)

Email: mmeccariello@fs.fed.us

Phone: 435.749.1775

FAX: 435.637.4940

BAER Assessment Team Members

Bob Davidson, Soil Scientist, Manti-La Sal National Forest
Don Wilcox, Civil Engineer, Manti-La Sal National Forest
Mat Meccariello, Ecologist, Manti-La Sal National Forest
Pam Jewkes, Fisheries Biologist, Manti-La Sal National Forest
Terry Hardy, Soil Scientist, Boise-Sawtooth National Forests

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:

Land Treatments consist of wood-straw mulch plus PAM-12 mulch, and PAM-12 mulch only. The mulching areas are located in the upper watershed source areas within the burn, on steep facing slopes. The purpose of the mulch is to protect soils on steep slopes from raindrop impact, to reduce the event energy at the watershed-head source areas, reduce hydrophobicity, increase water infiltration, minimize soil erosion and debris-particle entrainment in the runoff at the source areas, and promote re-vegetation from seed germination and seedling survival.

Wood Straw Mulch plus PAM-12 mulch – fine-textured silty clay loam soils located on 28 acres are proposed for both WoodStraw and PAM-12 mulch. The 28 acres are located on slopes 35% to 100%, on northeast facing timber slopes in high burn severity, with soils having high water repellency. Wood straw mulch will provide litter cover protection from raindrop impact for many years following treatment on the treated 28 acres, allowing extra time as vegetation reestablishes since timber areas take much longer to rehabilitate following a fire. PAM-12 will reduce soil hydrophobicity, increase water infiltration, and provide soil moisture for seedling germination and survival.

PAM-12 Mulch – 7 acres are proposed for PAM-12 only mulch. This area is located in the Right Fork Lake Fork drainage on burned over PJ/oakbrush with very rocky, fine-textured soils having loam and silty clay loam textures. Slopes are 40% to 100% with moderate burn severity, and on soils having moderate water repellency. Pinyon Juniper woodlands and mountain brush vegetation areas rejuvenate faster than timber areas; however, because there is greater surface rock content, there is greater runoff and reduced water infiltration than there would be otherwise. Therefore, the PAM-12 will help reduce soil hydrophobicity, increase water infiltration, and provide soil moisture for seedling germination and survival.

Channel Treatments:

None proposed

Roads and Trail Treatments:

Fire Suppression rehabilitation. Non BAER management recommendation. Remove Trees and brush that were felled into and across Lake Fork Drainage.

As a measure of fire containment, areas along the Lake Fork Drainage were cleared. Trees and brush were cut or shredded and limbs were stacked into slash piles. Some trees were felled into the stream channel. Although this activity occurred between the Right and Left Fork confluence (Lake Fork Road - MP 13.9 and junction MP 8.7), it creates a potential situation of added materials to be transported toward the bridge or deposited along the channel (Table 1 Issues – Road 50070). This issue is basically outside

the burden of the BAER. However, if combined with increased runoff rates from the Left/Right Fork (effects from the fire) the issues are compounded in the stretch of channel between Left/Right Fork confluence and the bridge.

Through fire suppression rehabilitation, felled trees and slash piles will be removed that could become transport materials into the stream. Continue to monitor the channel during spring run-off and storm events and continue to remove introduced debris from fire suppression activities.

BAER Emergency Response Stabilization. Protect Roads and Water Quality

Remove Existing Transported Material from the Channel Beneath the Bridge to Accommodate Expected Runoff Flows

Past years have seen an accumulation of material deposited in the streambed channel beneath the Lower Lake Fork Bridge on the east side (abutment 2 side). These deposits have resulted from pre-fire runoff events and should be somewhat stabilized. The increased runoff rates caused by the fire now change the dynamics of flow beneath the bridge during runoff events.

With the authority of a Bridge Engineer, remove built up sediment from beneath the bridge to bring the channel back to its design flow capacity. It is likely that the increased runoff from a major storm event will compromise the integrity of the bridge.

Protection/Safety Treatments:

In the case of a storm event of concern, the NWS would contact the Utah County Emergency Services directly, as well as issuing an alert in their normal manner.

Hazard warning signs

Install signs adjacent to roads at forest boundary in Lake Fork and Dry Creek drainages. Signs are intended to warn the public of hazards that exist on trails and recreation sites in the burned area. Vinyl reflectorized signs, mounted on 4"x4"x8' posts at heights and distances mandated in USFS Handbook.

CAUTION
Burned areas are subject to
EXTREME FLOODING HAZARDS
During spring snowmelt conditions and
Summer Thunderstorm Events

I. Monitoring:

Noxious Weeds – Early Detection and Rapid Response (EDRR)

Reduce the potential for noxious weeds to become introduced into burned and other detrimentally disturbed areas using EDRR. Consultations with the Resource Advisor indicates there is a high risk for noxious weed invasion. The threat is for noxious weeds to become established in the vicinity of highly susceptible disturbed and burned areas from seeds brought into the area by uncleaned fire suppression equipment from suppression operations (including incident camps, drop points, and water drafting sites).

The district will monitor and treat, as needed, approximately 124 acres susceptible to noxious weeds within and adjacent to the Coffee Pot Fire that were directly impacted as a result of moderate to high burn severity or from suppression activities (camps, fire suppression control lines, travel corridors, and drop

points). Monitoring utilizing Early Detection Rapid Response (EDRR) approach is proposed. Any noxious weeds found as a result of monitoring will be immediately treated for eradication using appropriate application techniques and approved herbicides. All treatments will take place in accordance with the Forest Noxious Weed Management Plan. Treatment of noxious weeds will be based upon what is found during monitoring within 1 year after the fire. At a minimum, two reconnaissance visits would be needed to appropriately treat weeds given the variable life history characteristics of the noxious weeds that have been successfully treated in the past. The EDRR approach allows for the immediate treatment of known infestations at the appropriate life stage, which is considered to be the most effective eradication method.

At least four species of noxious weeds (Musk Thistle, White Top, Scotch Thistle and Canada Thistle) have been successfully treated on lands immediately adjacent to the burned area, with isolated plants occurring along the nearby travel routes. Some treatment locations do not have motorized access and will require extra time for travel.

Treatment locations on NFS lands disturbed by suppression operations:

- incident base camp and helibase.
- 5 drop points.
- 8 miles of NFS road 070 Lake Fork and 006 Dairy Fork used to access drop points and the fire area from the incident base camp.
- 0.75 miles of constructed handline.
- 6 miles of secondary roads used for access into burned area.

Select herbicide, application rate, and time of application based upon specific weeds being treated, and access to the location of the potential invasion.

Storm Patrol – Roads/structural improvements

Monitoring patrols following spring snowmelt runoff and storm events is necessary to maintain the effectiveness of the treatment to remove sediment and debris to protect the bridge on Lake Fork Creek (see recommendations under Roads and Trails Treatments). If emergency conditions require immediate attention, the Regional BAER Coordinator will be contacted to request authorization to rapidly mobilize heavy equipment to complete the work required to protect the bridge. An Interim 2500-8 will be submitted to follow-up this activity. If maintenance is needed but threats are not urgent, an Interim 2500-8 will be submitted to request additional funding to ensure effectiveness of the initial treatment.

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

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands				All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units	Non Fed \$	
A. Land Treatments										
WoodStraw mulch	acres	3800	28	\$106,400	\$0		\$0		\$0	\$106,400
PAM-12 mulch	acres	700	35	\$24,500						\$24,500
										\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$130,900	\$0		\$0		\$0	\$130,900
C. Road and Trails										
Bridge structure protection	each	16380	1	\$16,380						\$16,380
				\$0			\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$16,380	\$0		\$0		\$0	\$0
D. Protection/Safety										
Hazard warning signs	each	350	2	\$700	\$0		\$0		\$0	\$700
Subtotal Structures				\$700	\$0		\$0		\$0	\$700
E. BAER Evaluation										
Assessment	each	18000	1	---	\$18,000		\$0		\$0	\$18,000
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				---	\$18,000		\$0		\$0	\$18,000
F. Monitoring										
Noxious weeds	acres	50	124	\$6,200	\$0		\$0		\$0	\$6,200
Bridge storm patrol	each	422	4	\$1,688	\$0		\$0		\$0	\$1,688
Subtotal Monitoring				\$7,888	\$0		\$0		\$0	\$7,888
G. Totals				\$155,868						\$138,788
Previously approved										
Total for this request				\$155,868						

PART VII - APPROVALS

1. /s/ Marlen A. DePietro (for):
Forest Supervisor (signature)

10/13/10
Date

2. /s/ Brian Ferebee (for)
Regional Forester (signature)

10/15/2010
Date