

Date of Report: 06/24/2013

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: Tres Lagunas B. Fire Number: NM-N4S-000070
C. State: NM D. Counties: San Miguel
E. Region: R03 F. Forest: Santa Fe-F10
G. Districts: Pecos/Las Vegas-D05
H. Fire Incident Job Code: PNHH9A
I. Date Fire Started: 05/30/2013 J. Date Fire Contained: 90% contained as of 6/20/2013
K. Suppression Cost: \$11.5M as of 06/19/2013
L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred and brush brought back on line (miles): Handline: All handline, 30.45mi, has been rehabed. Dozerline: All dozerline, 33.37mi, has been rehabed.
2. Fireline seeded (miles): 33.37 miles of dozerline will be seeded as soon as seed can be obtained.
3. Other (identify): N/A.

M. Watersheds – Affected 6th Codes

6th Code Watershed		Acres Burned	% Burned
Dry Gulch - Pecos River	130600010205	331	1.2%
Headwaters Cow Creek	130600010101	4,018	13.9%
Indian Creek - Pecos River	130600010204	5,870	21.3%

N. Total Acres Burned: 10,220 Based on IR Perimeter of 6/15/2013
NFS Acres: (7,828) Other Federal: (0) State: (40) Private: (2,352)

O. Vegetation Types: aspen, deciduous shrub mix, perennial grass mix, ponderosa pine mix, spruce-fir, upper deciduous-evergreen

P. Dominant Soils/Map Units:

6	200	221	236	252	353
7	212	224	237	337	359
101	213	228	251	351	

Q. Geologic Types: Pre-Cambrian igneous and metamorphic; Paleozoic sandstones, shales, and limestones.

R. Miles of Stream Channels by Order or Class:

Perennial: 5 miles
Intermittent: 28 miles

S. Transportation System

Trails: 0 miles
Roads: 17 total FS miles: ML 1 (closed) **2mi**; ML 2 – **15mi**; ML 3 – 0mi; ML 4 – 0mi; ML 5 - 0mi;

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 7,391(low/unburned); 1,309(moderate); 1,520(high)

B. Water-Repellent Soil (acres): 1,811ac (all moderate and high burn severity)

C. Soil Erosion Hazard Rating (acres):
0 (low) 2,290 (moderate) 7,929 (high)

D. Erosion Potential: 8 tons/acre (average across fire, low, mod, and high severity)

E. Sediment Potential: 1,615 cubic yards / square mile (average total)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	<u>5</u>
B. Design Chance of Success, (percent):	<u>80%</u>
C. Equivalent Design Recurrence Interval, (years):	<u>25</u>
D. Design Storm Duration, (hours):	<u>1</u>
E. Design Storm Magnitude, (inches):	<u>1.81"</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>57</u>
G. Estimated Reduction in Infiltration, (percent):	<u>50+</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>269</u>

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Tres Lagunas Fire started due to a downed powerline on lands under the jurisdiction of New Mexico State Forestry. The burned area is located north of Pecos NM. The majority of the fire is on National Forest System lands managed by the Pecos/Las Vegas District of the Santa Fe National Forest. Approximately 7,828 acres of the burn is on National Forest System Lands, 2,352 acres of the burn is on privately owned lands and 40 acres is on NM Department of Game and Fish lands.

The burn area is comprised of steep and narrow drainages reaching from the Pecos River at 7,550ft to mixed conifer and alpine grasslands at 10,183ft elevation. Several steep and short drainages will potentially transport and concentrate significant water and debris flows into the Holy Ghost and Pecos River channels. Soldier Creek has seen some moderate and high intensity burn, some of which was previously burned during the Viveash fire in 2000. Potentially heavy water and debris flows are likely to occur in Soldier Creek and continue into Cow Creek.

The Tres Lagunas soil burn severity map was based on BARC imagery from 6/6/2013. This data comes from the newly available LandSat 8 and required a significant shift in the value breaks between the high and moderate categories. The lower threshold for high severity was reduced from a value of 180 to 145. Some tight steep drainages in Holy Ghost canyon were changed from low to moderate severity. These adjustments were based on air and ground observations by team specialists.

On Monday June 10th the Jaroso fire started in the Pecos Wilderness north/northwest of the Tres Lagunas Fire. As of June 23th the fire had burned approximately 524 acres within the Panchuela Creek 6th code watershed which drains into the Pecos River. This amounts to 3.6% of the watershed. The burn area is approximately 7.6 miles from the confluence with the Pecos, and 14.4 miles from the Tres Lagunas burn scar. Fire activity has increased sharply in the last two days, though primarily not in the Panchuela Creek subwatershed. The burn severity within

the Panchuela Creek watershed is unknown at this time. The Jaroso Fire could potentially cause a cumulative increase in flows experienced along the Pecos River within and downstream of the Tres Lagunas fire. The BAER team advises the Pecos/Las Vegas Ranger District to monitor the potential implications to the Tres Lagunas post-fire effects.

Hydrologic Modeling:

Peak flows have been estimated for watersheds above values at-risk identified within and below the burned area. Estimated pre- and post-fire peak flows for the Wildcat 5 models are summarized in the table below. A total of twenty eight Wildcat 5 runs were completed, a post- and pre-run for each value-at-risk (VAR) drainage. All VAR modeling runs were completed simulating a 25-year/1-hour storm event. The modeled storm rainfall was 1.81 inches for the Pecos River and tributaries and 2.59 inches for the Soldier Creek tributaries, due to the differences in elevation between the modeled areas. The results were organized into four runoff response groups: Holy Ghost, Davis, Pecos and Soldier. Average peak flows were calculated for each group.

Tres Lagunas Fire Wildcat5 Model Summary for individual drainages

Sub-watershed Huc6	Acres	pre fire CN	post fire CN	Pre (cfs)	Post (cfs)	post burn % increase	pre cfs/mi ²	post cfs/mi ²	Avg % Increase
DAVIS	1189	71	75	295	457	55%	159	246	55%
GHOST 1	71	69	87	25	147	488%	226	1330	255%
GHOST 2	9	72	87	5	21	320%	363	1524	
GHOST 3	122	72	81	62	150	142%	326	789	
GHOST 4	6	72	85	4	12	200%	402	1207	
GHOST 5	65	72	83	35	99	183%	343	971	
GHOST 6	82	72	85	44	147	234%	343	1146	
GHOST 7	488	70	81	141	445	216%	185	584	
PECOS 1	58	64	73	9	36	300%	99	396	323%
PECOS 2	57	65	73	11	35	218%	123	392	
PECOS 3	198	69	84	57	269	372%	184	869	
PECOS 4	880	74	79	359	589	64%	261	428	
PECOS 5	571	61	76	31	307	890%	35	344	
PECOS 6a	105	70	83	35	134	283%	214	819	
PECOS 6b	42	70	81	18	54	200%	273	820	
PECOS 7	33	72	81	18	44	144%	347	849	
PECOS 8	22	73	88	14	55	293%	406	1595	
PECOS 9	64	73	79	40	70	75%	401	702	1094%
Horse	314	69	92	57	408	716%	116	832	
Soldier 1	105	64	88	34	382	1124%	207	2328	
Soldier 2	50	64	85	16	170	1063%	205	2176	463%
Soldier Ck	1770	71	78	320	1480	463%	69	320	

Modeled Storm = 25 yr/1 hour; Davis, Ghost, Pecos, Horse = 1.81"; Soldier = 2.59"

CN = overall basin Curve Number indicates runoff response from burned areas

Post-fire flows predicted by Wildcat5 show high variability in modeled runoff due to basin size and burn severity. Small drainage basins with much of the area in high fire severity and

hydrophobic soils, such as the Soldier Creek headwaters (Soldier 1 and 2), indicate an order of magnitude (10 times pre-fire flows) increase in runoff may occur. Larger drainages, such as Davis Creek, with a mosaic of burn severity, showed a much lower potential hydrologic response.

Critical Values Identified

Critical Values identified (FSM 2523.1 Exhibit 01) during the BAER assessment are: Human life and safety, property, natural resources and cultural/heritage resources. The BAER team evaluated the risk to those critical values using the BAER Risk Assessment (FSM 23235.1 Exhibit 02).

The following risk matrix shown on the next page, Exhibit 2 of Interim Directive No.: **2520-2013-1**, was used to evaluate the Risk Level for each value at risk identified during Assessment:

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.	Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.	Property damage is limited in economic value and/or to few investments; damage to natural or cultural resources resulting in minimal, recoverable or localized effects.
RISK			
Very Likely (>90%)	Very High	Very High	Low
Likely (>50% to <90%)	Very High	High	Low
Possible (>10% to <50%)	High	Intermediate	Low
Unlikely (<10%)	Intermediate	Low	Very Low

The Very High and High Risk are unacceptable risk levels due to threats to human life, property, infrastructure and resources, therefore response actions should be applied. An Intermediate Risk could be unacceptable if human life or safety is the critical value at risk. The above matrix only applies to values on National Forest System (NFS) lands. Values on other jurisdictions have been assigned a probability of damage or loss but **not** a magnitude of risk.

Human Life and Safety

There is very high risk of loss of life on NFS land within and downstream of the burned area. Individuals who may find themselves in drainages within or below the burned area or on roads affected by fire upstream are at very high risk during storm events. The drainages affected by high burn severity will be subject to higher than usual run off and debris flows which could cause injury or death. Hazard trees throughout the burn pose a very high risk to anyone entering the area. In particular, multiple hazard trees threaten the life and safety of crews working along FR 122 and among the historic cabins.

There is a high probability that life and safety will be threatened by post-fire storm events on private and State lands in Pecos Canyon downstream from the burn area. There is also a high likelihood that the Pecos River could be contaminated by hazardous materials from commercial and private properties during a flood event such as septic waste and household chemicals.

NM Highway 63 is currently the only escape route out of Pecos Canyon. In the event of a catastrophic fire or flood, the highway could be a limiting factor in successfully evacuating this canyon. Consideration of the number of cars that can safely travel and park along NM Highway 63 without causing traffic jams during an emergency evacuation is crucial to the safety of Pecos Canyon residents and visitors.

Property

Forest Service recreation and transportation infrastructure within and downstream from high and moderate burn severity are at a high risk of damage. There is a high probability of other public and private property sustaining damage due to storm runoff and debris flows. Hydrologic modeling predicts elevated runoff in Holy Ghost Creek, Davis Creek, Soldier Creek and the Pecos River. The increase in peak flows predicted (shown in the hydrologic modeling table above) from areas of high and moderate burn severity, and the loss of channel structure pose a significant threat of flood waters and debris flows that are likely to impact downstream property and infrastructure (e.g. homes, businesses, roads, culverts, bridges and low water crossings.)

Natural Resources

Fish and Wildlife Species

Threatened and Endangered species (T&E) are identified as BAER critical values. T&E affected by the fire are: Holy Ghost Ipomopsis, an Endangered species; and Mexican spotted owl, a Threatened species. The fire will have moderate impacts on wildlife, fish and rare plant populations and their associated habitats. Additional biological natural resources that may be impacted by imminent post-wildfire threats such as flooding and erosion include several Forest Service Sensitive species including Northern leopard frog, and rare plants such as the Pecos fleabane. Fisheries in the Upper Pecos watershed, including Holy Ghost Creek, Soldier and Cow Creeks, and the Pecos River, may experience significant impacts due to ash-flows and habitat loss from excessive stream scouring that may occur during monsoonal rain events; and game species, especially elk, mule deer, and wild turkey. These effects could last several years.

Invasive Plants

Bull thistle and Scotch thistle occur in and around the Pecos River drainage. Populations of Scotch thistle are documented all along the NM Highway 63 within the Pecos river corridor. In addition, an 18-acre bull thistle site was documented on the east side of the river. Generally a 25-30% increase in non-native invasive plant species is seen after a major wildfire event. Invasive plant seeds may also be introduced during suppression efforts and may result in new populations of noxious weeds.

Soil Productivity and Hydrologic Function

Soils

The overall scale of the fire is within the natural range of variability for the forest cover type within the Tres Lagunas Fire. High elevation mixed conifer stands typically burn at high severity, often resulting in stand replacement. These conditions are essential for regeneration of early-seral species such as aspen, which typically regenerate following large scale, high severity wildfire. However, downstream effects of erosion and slope destabilization are likely. These effects have the potential to damage forest infrastructure and other natural resources.

Hydrologic Function

Establishment of vegetative cover is critical to reducing erosion rates, improving hydrologic function, and maintaining site productivity. Mulching and seeding provide immediate or short-term cover which reduces erosion and runoff. Natural re-establishment of cover can require up to five or more years to reach pre-burn cover conditions, which will assist in re-establishing natural runoff and erosion rates. If large-scale heavy rainfall events occur within the five-year period, extreme erosion events could also occur, resulting in a loss of hydrologic function and soil productivity. This would further delay natural cover re-establishment and cause longer term accelerated erosion and high runoff events.

While water quality is a vital part of the natural landscape it is not a BAER critical value and it is not appropriate to address with emergency response actions. The team recognizes that in the short term, water quality will be greatly degraded due to ash and sediment deposition from post-fire conditions. Holy Ghost Creek, Pecos River, Soldier Creek and lower Cow Creek will be highly impacted. Indian Creek will be impacted to a lesser degree by ash and sediment deposition.

Wild and Scenic Rivers (WSR)

A 20.5 mile section of the Pecos River, from its headwaters in the Pecos Wilderness to the town site of Terrero, NM, was designated as a Wild and Scenic River (WSR). The southern-most end of the WSR segment was affected by the Tres Lagunas fire. Long-term effects will have minimal impacts to the scenic/wild character of the Pecos River. The existing condition of the designated WSR that overlaps the burn area is already compromised by private and government improvements and public impacts. The majority of designated WSR is north of the burn area and will experience minimal or no impacts.

Riparian Habitats

While riparian habitat is a vital part of the natural landscape it is not a BAER critical value. Riparian Habitat restoration post-fire is a long process that the Santa Fe National Forest must undertake and it is not appropriate to address with emergency response actions.

These areas will be affected on NFS lands due to changes in peak flows, which will result in channel erosion and damage to, or loss of, the riparian vegetation. Riparian habitat within the stream drainages is expected to be subject to increased channel erosion and scour as well as deposition of ash, sediment and debris from upstream areas of high burn severity. This will cause warming of surface waters due to the loss of streamside shade, resulting in impacts to, or loss of, aquatic habitat for fish and macro- invertebrates.

Cultural Resources

The Santa Fe National Forest contains high densities of cultural resources; however, much of the Tres Lagunas burn is in a lower density area. Increased flows of water, sediment, and debris pose a threat to archaeological sites and historic properties.

There are approximately 48 archaeological sites and historic including the Holy Ghost Historic District (a group of cabins located next to Holy Ghost Creek at the bottom of Holy Ghost Canyon), and these sites are immediately adjacent to the burn perimeter. These cabins are privately owned and protection/maintenance of the cabins are explicitly the responsibility of the owners as outlined in the special use agreements. Of the 48 archaeological sites or historic properties, most are eligible or recommended as eligible for the National Register of Historic Places and have a high probability of being affected. The types of sites associated with the high risk category include historic cemeteries, historic cabins, prehistoric artifacts, and scatters.

B. Emergency Response Action Objectives:

1. Place entire burn area, Holy Ghost Canyon, recreation sites, and NFS lands along the Pecos River in an administrative closure status to prevent injury to the public from hazard trees, flooding, debris flows, and potential entrapment within the burn area for two years. Recreation sites recommended for closure include: Holy Ghost CG, Windy Bridge CG, upper and lower Dalton day-use areas, and Field Tract CG. These closures should remain in effect for a minimum of the next two monsoon seasons. Install closure gates at Windy Bridge CG and Dalton day use areas.
2. Install closure and hazard warning signs at key access points of the burn area to protect the public from entering the burned area and prevent exposure to the hazards of the burned area.
3. Stabilize soil and provide immediate protection from rainfall by aerial mulching high severity and some moderate severity burn areas, under 60% slope, where elevated runoff events pose an imminent risk to life, property, cultural resources, and critical natural resources. This will assist in reducing erosion and maintaining long-term soil productivity.
4. Seed high and moderate burn severity areas to promote short- and long-term soil stability against erosion and soil productivity loss and protect critical natural resources.
5. Mitigate damage to NFS roads within the burn area by installing additional drainage features such as rolling dips, armoring outslopes, and preparing roads to handle increased modeled storm runoff.
6. Pump five vault toilets along streams that will be affected by post-fire flows. This is intended to prevent contamination of waterways and prevent risk to public health.
7. Stabilize Heritage sites that consist of archaeological sites, and traditional cultural properties (TCPs) from post-fire conditions relating to storm runoff and hazard tree impacts by seeding heavily above these sites.

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

Mulching 70 % Seeding 75 % Channel 60 % Roads/Trails 90 % Protection/Safety 95 %
Probabilities assume onset of monsoonal storms on July 4th.

D. Probability of Response Action Success

Years after Response Action			
	1	3	5
Land	75	85	95
Channel	85	90	95
Roads/Trail	75	90	95
Protection/Safety	90	95	95

E. Cost of No-Action (Including Loss): \$78,431,226

Critical values would be lost. See critical value list above, and in the Values At Risk table. The total cost for values at risk if no action were taken is estimated at \$78,431,226. Selected examples are listed below:

There is a VERY HIGH risk, with a Very Likely probability (>90%) of impacts to natural resource values including soil productivity, fisheries and others, located in and immediately down slope of high and moderate severity burns. Total estimated values are listed above. Therefore the total cost of taking no action would be \$8,805,832.

There is a VERY HIGH risk, with a Very Likely probability (>90%) of impacts to administrative site values, including campgrounds, day use sites, and other constructed facilities, located in and immediately down slope of high and moderate severity burns. Total estimated values are listed above. Therefore the total cost of taking no action would be \$762,559.

For more information, please reference the VAR Tool Spreadsheet, VAR replacement costs and the cost-risk analysis in separate documents.

F. Cost of Selected Alternative (Including Loss): \$17,058,850

There remains a 20% chance that the proposed treatments for this initial work may not succeed. Total cost of the action alternative plus this 20% chance of failure is \$17,058,850.

G. Skills Represented on Burned-Area Survey Team:

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

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Additional Team Members: Rob Arlowe – Deputy Lead, Julie Bain – Lead Trainee, Kit MacDonald – Soils, Jennifer Hill – Soils, Paul Brown – Hydro, Zig Napkora – Hydro, Chantel Cook – Wildlife and Fish, Tim Downing – GIS, Lee Harrelson – Engineering, Ken Reese – Silviculture, Beth Mitchell – PIO, Alberta Maez – PIO(T)

H. Response Action Narrative:

The Santa Fe National Forest is currently exploring the use of the Wyden Amendment authority to treat high severity burn areas on non-NFS lands above high severity burn areas within the Forest. Following the completion and successful execution of a Land Use Cooperative Agreement the Forest will request approval via an Interim FS-2500-8 report.

Land Response Actions:

Straw Mulch

Application of straw mulch on 512 acres of high and moderate burn severity with highly erosive soils that drain into the Pecos River. The areas of moderate burn severity proposed for treatment exhibit high hydrophobicity and a lack of needle cast to provide natural mulch. Mulch is the most effective treatment for controlling erosion and reducing runoff as it provides immediate ground cover (Robichaud, et al, 2010, Napper, 2006, Larsen, et al, 2009). Areas proposed for mulching would be treated at a rate of one ton per acre. Mulch would be applied by helicopters at locations identified on the attached treatment maps, avoiding slopes of greater than 60%. Mulch would be applied to reduce erosion and peak flows. It would be effective for reducing loss of soil productivity and hydrologic function and would also provide some reduction in peak flows that threaten downstream life and safety as well as downstream property and infrastructure.

Seeding

A total of 1,653 acres of high and moderate burn severity would be seeded to provide vegetative ground cover where the soil seedbank has been eliminated. Most of the high burn severity that occurred as a result of the Tres Lagunas Fire burned in mature ponderosa pine and mixed conifer. This dense, closed canopy accumulated a thick layer of duff over approximately a 100-250 year period, essentially excluding forb or graminoid cover. The tree seeds are often destroyed in the organic duff layer, as are grass and forb seeds. Seeds are consumed in the fire or heat sterilized. Therefore, these soils do not have a viable seed bank of their own and will not stabilize naturally without sacrificing site potential. A quick-germinating, nonpersistent annual species would provide rapid ground cover and native perennial species would provide longer term ground cover. Seeding would reduce impacts to soil productivity and hydrologic function, and reduce threats to life, safety, property, and infrastructure downstream by reducing erosion and runoff. Seeding would also provide benefits for critical natural resources by accelerating vegetative recovery that would reduce erosion and sedimentation into streams, and by accelerating habitat recovery. Seeding is recommended on the headwaters of Soldier creek in a high severity burn section and in a strip of high to moderate severity burn running parallel to the creek. This seeding is critical since it treats areas that reburned through the Viveash burn scar. The Viveash fire burned with high intensity, resulting in total stand replacement over 80% of the burn scar. The advantage of seeding will be to establish a vegetative cover on this twice-

burned area in order to protect the remaining soil and retain what remains of the soil productivity and the hydrological function of the sites. Treatment areas are identified on the attached seeding map. Two seeding rates will be used: a lighter seed mix will be used in conjunction with straw mulch and a heavier mix will be used for areas that will not be mulched. The proposed seed mixes are identified in the tables below.

Seed mix for use in combination with straw mulch (512 ac). This mix has a reduced level of annual barley. Areas treated with straw mulch will provide immediate ground cover and a lighter seeding rate is prescribed.

Seed and Mulch Treatment Area

Species	Planting Rate (pls #'s/acre)	Seeds/ft2 Contribution from Planting Rate
Barley (<i>Hordeum vulgare</i>)	22.5	6.5
Little Bluestem (<i>Schizachyrium scoparium</i>)	.25	1.5
Muttongrass (<i>Poa fiedleriana</i>)	0.05	1.00
Slender Wheatgrass (<i>Elymus trachycaulus</i>)	2.46	9.00
Total	25.26	18.00

Seed mix for use in treatment areas that will **not** receive mulch (1,141 ac).

The second table is the seed mix for use in 1,141 acres of treatment areas that will not receive mulch. This mix includes a higher concentration of barley in the absence of straw mulch. The heavier seeding rate is for 60% and higher slopes. This heavier seeding is necessary to ensure establishment of a vegetative cover on the steeper slopes, especially in the high to moderate severity burned areas. The Tres Lagunas fire burned at a higher severity in strips up the steep slopes, resulting in a series of chutes that have no vegetative cover to slow the increased hydrological flow that will occur during intense rain events. Further, these areas have little to no chance to accumulate any organic layer or mulch from discarded pine needles. Due to the steep inclines, straw mulch is unlikely to remain in place to provide that cover. This higher rate of seeding has a good chance to provide a rapid response ground cover, since the elevated seeding is composed primarily of annual barley. In addition, once the barley has grown, establishing roots to hold the soil in place, a snow cover causes the barley to bend over, thus creating an organic thatch that retains moisture and shades recovering native vegetation from direct solar radiation. This technique has been shown to be successful when used on steep slopes in the absence of mulch on both the Whitewater-Baldy and the Little Bear burn scars.

Seed Only Treatment Area

Species	Planting Rate (pls #'s/acre)	Seeds/ft2 Contribution from Planting Rate
Barley (<i>Hordeum vulgare</i>)	62.70	18.00
Little Bluestem (<i>Schizachyrium scoparium</i>)	0.50	3.00
Muttongrass (<i>Poa fiedleriana</i>)	0.05	1.00
Slender Wheatgrass (<i>Elymus trachycaulus</i>)	4.38	16.00
Total	67.57	38.00

Noxious Weed Detection and Response Actions:

Field visits for the detection of invasive noxious weed species will take place post-monsoon season and again in the spring. Visits will focus on areas around known populations of bull thistle and Scotch thistle. Any weed species found will be treated

Channel Response Actions:

Channel response actions are necessary in order to reduce the threat to life and property downstream due to dislodged woody debris that could become projectiles during a flood event. In addition, actions are necessary to reduce the threat to downstream life and property due to breaches of debris jams, and reduce the threat of severe damage to valuable Forest Service resources and infrastructure, floatable woody debris will be removed from 1.09 miles of the Holy Ghost Creek channel.

Channel realignment and armoring of Holy Ghost Tributary 4: This response action is needed to protect public safety from debris flows onto FR122 and minimize the potential for a flow of debris into Holy Ghost Creek that could block the culverts, thereby threatening public safety and road stability. This response action would realign approximately 250 ft. of the tributary 4 approach into Holy Ghost Creek.

Roads and Trail Response Actions:

Road armoring and rolling dips along FR 92, 86A, and 646. Culvert and Side Ditch cleaning along 1.5 miles of FR 192 (Indian Creek Rd) and 1.5 miles of FR 122 (Holy Ghost Rd).

This activity was only approved for road stabilization in high and moderate burn severity.

Protection/Safety Response Actions:

Implementation of an administrative closure order for the Holy Ghost Canyon and FR 122, to remain in effect for at least two monsoon seasons. Access for recreational cabin owners shall be negotiated with the District Ranger, as appropriate, to allow for source point protection of the cabins and property covered under the special use permit.

Implementation of administrative closure orders for the entire burn area until the spring run-off in 2014, and through a second monsoon season. Signs should be installed at key access points, due to safety concerns and unstable road conditions, especially during the monsoonal season. Install 7 closure signs on roads and approximately 6 hazard warning signs at key entry points around the burn area to inform the public of the dangers inherent in entering the burn scar. Pump 5 vault toilets located in areas that have the potential to flood will be pumped.

Implementation of administrative closure orders for developed recreation sites along the Pecos River, for at least two monsoon seasons. These areas will be prone to increased flows, debris, sediment and ash flows directly attributable to effects from the burn scar. Opening of the sites should only be done after monitoring by the district/forest personnel, and monitored thereafter to assess any potential continuing flooding, debris and bulking threats due to intense rain events on the burn scar.

Hazard trees will be felled along 1.93 miles of Forest Service roads to allow safe travel through a small segment of the burn area.

Sand bags have been recommended for source point protection of two historic cabins at the Rosilla administrative site. The cabins are up out of the floodplain, but directly below a high

severity burn area, and will be subject to increased overland water flow, ash and sediment flows as well as potential debris. Sandbag should be an effective treatment for the expected sedimentation.

Storm patrols will be scheduled for immediate monitoring after significant rain events targeting affected roads and low water crossings for debris and sediment removal. Storm patrol for debris jams: 2 teams of 2 employees times 10 storm events.

I. Monitoring Narrative:

Tres Lagunas BAER treatments will be monitored to determine 1) if treatments were successful (effective ground cover, recreation site damage minimization, resources protection, road damage minimization) and 2) if treatments resulted in undesirable results (i.e., introduction of noxious weeds). Final summaries will be provided annually.

1) Treatment effectiveness:

Monitoring treatment effectiveness will consist of monitoring the seeding and mulching following contract completion to ensure effectiveness. Initial plots for repeatable photo points will be established before the contracts commence, to provide baseline data. Photo points will be established in July around the Holy Ghost Canyon, Davis Canyon, Chaparito Ridge, and in the headwaters of Soldier Creek. Objectives for the monitoring are to determine the effects of the post-fire application of seeding and hydro-mulch on the steep hillslope erosion and establishment of vegetative recovery. The monitoring efforts will be completed in October of each year. Final summaries will be provided annually.

Monitoring of treatment effectiveness is designed to document the effectiveness of the prescribed treatments on the land, and to ensure compliance with contract specifications of mulching and seeding on the burn scar. Photo points will be established in the treatment area, and followed up in the post-monsoon and late fall season.

2) Monitoring undesirable results:

Monitoring for undesirable outcomes (i.e., noxious weed populations) will be done on the Tres Lagunas Fire along the perimeter of Holy Ghost road, the aerial mulch staging area, and in areas that were mulched in landscape treatments. Noxious weeds have been identified by the Chief of the Forest Service as one of the top four threats to National Forest System lands. Monitoring of noxious weeds will be conducted at the end of monsoon season.

Part VI – Emergency Stabilization Response Actions 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										
straw mulch	acres	1,100	512	\$563,200	\$0		\$0		\$0	\$563,200
aerial seeding light	acres	90	512	\$46,080	\$0		\$0		\$0	\$46,080
aerial seeding heavy	acres	170	1141	\$193,970						\$193,970
nox weed	days	600	4	\$2,400						\$2,400
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$805,650	\$0		\$0		\$0	\$805,650
B. Channel Treatments										
Channel Clearing	miles	20,000	1.09	\$21,800	\$0		\$0		\$0	\$21,800
HG trib 4 realignment	each	7,500	1	\$7,500	\$0		\$0		\$0	\$7,500
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treat.				\$29,300	\$0		\$0		\$0	\$29,300
C. Road and Trails										
Culvert and Ditch clear	per	1,900	1	\$1,900	\$0		\$0		\$0	\$1,900
Road armoring	per	20,000	0.5	\$10,000	\$0		\$0		\$0	\$10,000
Rolling Dips	per	40,000	0.5	\$20,000	\$0		\$0		\$0	\$20,000
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$31,900	\$0		\$0		\$0	\$31,900
D. Protection/Safety										
Road Closure Signs	per	300	7	\$2,100	\$0		\$0		\$0	\$2,100
Hazard Signs	per	150	6	\$900	\$0		\$0		\$0	\$900
Hazard Tree Felling	miles	4,000	1.93	\$7,720	\$0		\$0		\$0	\$7,720
Vault Toilet Pumping	per	1,000	5	\$5,000	\$0		\$0		\$0	\$5,000
Sand Bag cabin	per	5,000	2	\$10,000	\$0		\$0		\$0	\$10,000
Storm Patrol	days	1,060	10	\$10,600	\$0		\$0		\$0	\$10,600
Closure Gates	each	2,500	4	\$10,000	\$0		\$0		\$0	\$10,000
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$46,320	\$0		\$0		\$0	\$46,320
E. BAER Evaluation										
assessment	per	106,000	1	---	\$106,000		\$0		\$0	\$106,000
Insert new items above this line!				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				---	\$106,000		\$0		\$0	\$106,000
F. Monitoring										
seed, mulch effectiveness	per	2000	1	\$2,000	\$0		\$0		\$0	\$2,000
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$2,000	\$0		\$0		\$0	\$2,000
G. Totals				\$915,170			\$0		\$0	\$1,021,170
Previously approved										
Total for this request				\$915,170	\$106,000					

PART VII - APPROVALS

- | | | |
|----|--|---------------------------|
| 1. | <u>/s/ María T. García</u>
MARIA T. GARCIA
Forest Supervisor (signature) | <u>06/25/2013</u> |
| 2. | <u>/s/ Gilbert Zepeda (Acting)</u>
Regional Forester (signature) | <u>06/27/2013</u>
Date |