USDA-FOREST SERVICE FS-2500-8
(7/00)

Date of Report:
9/22/2019

BURNED-AREA REPORT

(Reference FSH 2509.13)

Part I - Type of Request

1. Type of Report
   a. ☒ Funding request for estimated WFSU-SULT funds
   b. ☐ Accomplishment Report
   c. ☐ No Treatment Recommendation

2. Type of Action
   a. ☒ Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)
   b. ☐ Interim Report
      i. ☐ Updating the initial funding request based on more accurate site data or design analysis
      ii. ☐ Status of accomplishments to date
   c. ☐ Final Report (Following completion of work)

Part II - Burned Area Description

(A) Fire Name: Taboose

(B) Fire Number: CA-INF-002108

(C) State:CA

(D) County: Inyo

(E) Region:05

(F) Forest: Inyo

(G) District: White Mountain

(H) Fire Incident Job Code: P5MQ8E

(I) Date Fire Started: September 04,2019

(J) Date Fire Contained: Estimated 09/30/2019

(K) Suppression Cost: Estimated 10.5 M

(L) Fire Suppression Damages Repaired with Suppression Funds

a. Fireline Waterbarred (Miles):.5 miles dozer line repaired,

b. Fireline Seeded (Miles): .5 miles seeded

c. Other (Identity): 40.8 miles of handline (mostly a light scratch or boot scratch), drop points, spike camps, sling areas

(M) Watershed Number:

HUC12 #	HUC12 Name	Total Subwatershed Acres	Total Subwatershed Acres Burned	% of Subwatershed Burned
180901020803	Tinehama Creek	23,822	3,266	14%

180901030101	Taboose Creek-Owens River	37,773	6,004	16%
180901030102	Goodale Creek-Owens Valley	28,212	993	4%

(N) Total Acres Burned: 10,263

NFS Acres:8,790 Other Federal:651 LADWP:670 Private:152

(O) Vegetation Types: Sage brush, Jeffrey pine, Water Birch (riparian areas)

(P) Dominant Soils:

Soil Map Unit Name	Acres	%
Wrango Family - Torriorthentic Haploxerolls Complex, 0 to 15 percent slopes	2,311	23%
Wrango Family - Torriorthentic Haploxerolls Complex, 15 to 30 percent slopes	1,728	17%
Typic Xerorthents -Rock Outcrop complex, 40 to 85 percent slopes	1,435	14%
Goodale Loamy Coarse Sand, 5 to 15 percent slopes	1,109	11%
Entic Haploxerolls - Typic Cryoborolls - Rock Outcrop association, 50 to 85 percent slopes	843	8%

(Q) Geologic Types:

Unit Description	Acres	%
Younger alluvial and debris-flow gravels	4,166	41%
Talus	1,812	18%
Taboose Pluton	1,714	17%
Rocks similar to the Cathedral Peak granite	735	7%
Tinemaha Granodiorite	593	6%

(R) Miles of Stream Channels by Order or Class: ephemeral: 2.9 miles; Intermittent: 43.4 miles; Perennial: 20.7 miles.

(S) Transportation System

Trails:12 miles Roads: .5 Motorized Trails: 6.2 miles

Part III - Watershed Condition

(A) Soil Burn Severity (Acres)

a. Unburned / Very Low: 956 (9%)

b. Low: 4,518 (44%)

c. Moderate: 4,661(45%)

d. High: 128 (1%)

(B) Water-Repellent Soil (Acres): 5,600

(C) Soil Erosion Hazard Rating (Acres)
N/A: 1,420 (14%)

a. Low: 1,773 (14%)

b. Moderate: 2,690 (26%)

c. High: 1,209 (12%)

d. Very High: 3,171 (31%)

(D) Erosion Potential (Tons / Acre): .38 Tons/acre (2 year probability)

(E) Sediment Potential (Cubic Yards / Square Mile):

a. 7,934 Cubic Yards/Square Mile (2 Year - 50% Probability)

Part IV - Hydrologic Design Factors

(A) Estimated Vegetative Recovery Period (Years): 3-5

(B) Design Chance of Success (Percent): 80

(C) Equivalent Design Recurrence Interval (Years):5

(D) Design Storm Duration (Hours):1

(E) Design Storm Magnitude (Inches):.6

(F) Design Flow (Cubic Feet / Second / Square Mile:15

(G) Estimated Reduction in Infiltration (Percent):80

(H) Adjusted Desgin Flow (CFS / Square Mile): 18

Part V - Summary of Analysis

(A) Describe Watershed Emergency

Introduction: The fire started on September 4,2019 by lightning. Initially the fire was contained at approximately 340 acres. A large wind occurred and expanded the by fire by approximately 9,000 acres. The fire is still slow expanding and is now 10,293 (as of 09/22/2019). A series of cold, dry winter storms with high winds continue to push the fire slowly south and west into the High Sierra.

Soils/Erosion Response (Soil Hydrologic response): Soils found within the fire area have been heavily influenced by the local parent material (debris flow deposits, colluvium, and alluvium) forming sandy, often coarse and unconsolidated, soil textures.

Estimated Erosion Response

Quantitative erosion figures were estimated using the Erosion Risk Management Tool (ERMiT) batch model. ERMiT is a Water Erosion Prediction Project (WEPP-based application developed by USFS Rocky Mountain Research Station USFS, RMRS-GTR-188, 2007) specifically for use with post-fire erosion modeling. Model estimated erosion potential is based on single hillslopes and single-storm "runoff events". The model only accounts for sheet and rill erosion, which occurs when rainfall exceeds infiltration rates and surface runoff entrains surface soil particles. It does not account for shallow landslides, gullying, stream-bank erosion, road effects, fire-line erosion, or gullying; which could present large additional sources of sediment entering the fluvial systems.

ERMiT batch hillslopes were created to account for differences in soil map unit components, vegetation, topography inputs (gradient and horizontal slope length), and soil burn severity. Different storm runoff-event magnitudes may be chosen in ERMiT for erosion response estimates; the 50% probability (2 year), 20% probability (5 year), and 10% probability (10 year) storm events were modeled for this analysis. ERMiT uses the PRISM module to generate site specific climatic input parameters based on the latitude, longitude, and elevation. Burned and unburned modeling results are reported in tons per acre and total tons for the fire area and subwatersheds intersecting the fire area (Tables 1 & 2).

Table 1: Taboose Fire BAER ERMiT unburned results

Area	50% Probability (2 Year)		20% Probability (5 Year)		10% Probability (10 Year)	
	Average Sediment Delivery (Tons/Acre)	Total Sediment (Tons)	Average Sediment Delivery (Tons/Acre)	Total Sediment (Tons)	Average Sediment Delivery (Tons/Acre)	Total Sediment (Tons)
Taboose Fire	0.00	2,031	0.03	22,201	1.52	876,294
Tinehama Creek Subwatershed	0.00	10	0.04	116	1.81	6,843
Taboose Creek-Owens River Subwatershed	0.00	17	0.03	207	1.28	9,203
Goodale Creek-Owens Valley Subwatershed	0.00	3	0.03	42	1.72	1,775

Table 2: Taboose Fire BAER ERMiT burned results

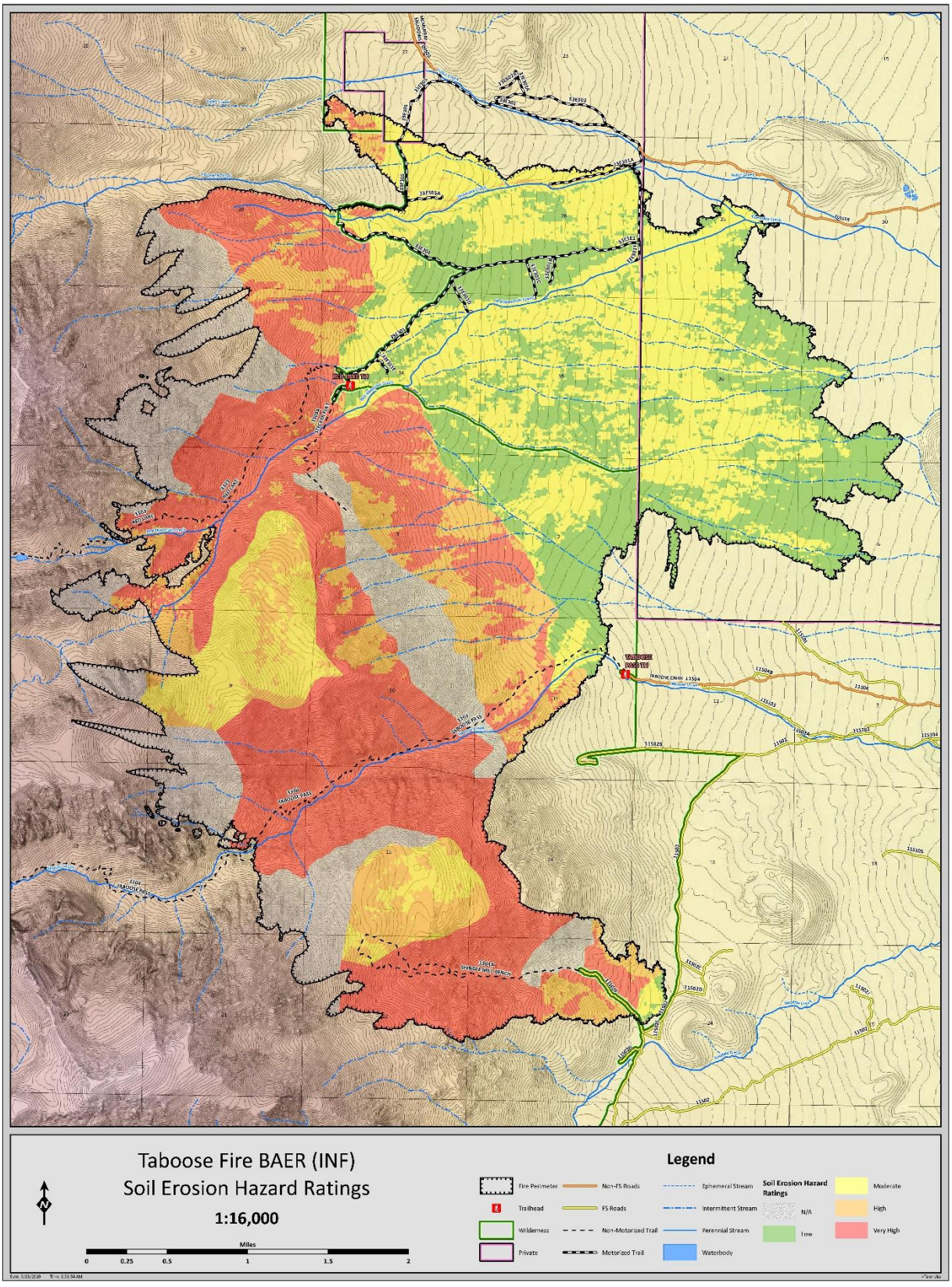
Area	50% Probability (2 Year)		20% Probability (5 Year)		10% Probability (10 Year)	
	Average Sediment Delivery (Tons/Acre)	Total Sediment (Tons)	Average Sediment Delivery (Tons/Acre)	Total Sediment (Tons)	Average Sediment Delivery (Tons/Acre)	Total Sediment (Tons)
Taboose Fire	0.38	171,766	3.50	2,368,604	8.55	5,635,713
Tinehama Creek Subwatershed	0.39	928	3.66	12,848	8.74	30,464
Taboose Creek-Owens River Subwatershed	0.38	1,558	3.57	17,207	8.85	42,974

Goodale Creek-Owens Valley Subwatershed	0.33	399	3.11	3,256	7.89	7,937

A 50% probability (2-year) storm event was modeled to determine if the estimated soil erosion for the fire area would affect soil productivity. The modeled 50% probability (2-year event) produced 171,766 tons of sediment equivalent to 0.38 tons per acre or 7,934 cubic yards per square mile (using a conversion factor of 1.35 tons per cubic yard). 1,000 tons of sediment equates to roughly 120 standard 10 cubic yard dump trucks. Increased hillslope erosion is expected to occur throughout the fire area, greatest increases within the high and moderate soil burn severities and within steeper topography. The unburned (pre-fire condition) modeled an estimated 2,031 tons of sediment equivalent to <0.01 tons per acre or 94 cubic yards per square mile. The stated accuracy of the model is +/- 50%.

Due to the rain shadow effect on the eastern side of the Sierra the annual precipitation is quite low which resulted in very low modeled post-fire erosion values. However if extreme rainfall events occur, high runoff and erosional events could ensue resulting in a further loss of soil productivity, affects to water quality, and an increase in the potential for damage or loss of resource values downstream. Thunderstorms from summer monsoons are common in this area, with rainfall amounts and intensities, while variable, are usually more intense than the modeled 2-year event. While soil erosion is always irreversible, the damage to soil productivity is considered recoverable in most cases, as forest soils are generally resilient and post-fire pulse erosion is a natural geomorphic process.

a. *Sediment production*: the erosion hazard rating map (below) shows areas of high risk of sediment production. The BAER Team observed stored ash and sediments in the main and side channels as this area has not burned in recent history. In addition, the high winds experienced in this area blew ash and loose sediments into the channels, “super charging” them for the first runoff producing storm.


Taboose Fire BAER (INF)
Soil Erosion Hazard Ratings
1:16,000
Miles
0
0.25
0.5
1
1.5
2
Legend
Fire Perimeter
Trailhead
Wilderness
Private
Non-FS Roads
FS Roads
Non-Motorized Trail
Motorized Trail
Ephemeral Stream
Intermittent Stream
Perennial Stream
Waterbody
Soil Erosion Hazard Ratings
N/A
Low
Moderate
High
Very High

Watershed Response

Fire Effects on Watershed

The Taboose Fire mostly burned with moderate and low severity, with lesser amounts of high soil burn severity noted during field observations. The fire was started by lightning. Most of the vegetation burned was upland plant types along the slopes and alluvial fans, and abundant riparian vegetation was severely burned along the stream channels. Burned soils showed strong hydrophobic conditions noted from samples taken in the 1-2 inch depth below ash and organics. Large areas on the burned slopes have low amounts of groundcover remaining after the fire (moderate and high burn severity areas). Due to the high amount of hydrophobic soils and lack of ground cover resulting from the fire, increased runoff from storm events is expected, more during the first year after the fire. Adding to that, the steepness of the burned mountain slopes in the fire area can increase runoff velocity down slope and soil erosion.

Table 2: Soil Burn Severity Table by Watershed for the Taboose Fire

Pour Point Watershed	Total Acres	Unburned Acres	Low Severity Acres	Moderate Severity Acres	High Severity Acres
Tinnemaha Creek at 395	24286	21097 (87%)	1236 (5.1%)	1889 (7.8%)	64 (0.26%)
Red Mountain Creek	5624	3526 (63%)	907 (16%)	1154 (21%)	37 (0.66%)
Taboose Creek at 395	18268	12967 (71%)	2892 (16%)	2367 (13%)	42 (0.23%)
Goodale Creek	9258	8440 (91%)	391 (4.2%)	405 (4.4%)	22 (0.24%)

Upland slopes burned significantly where large stands of well-developed shrubs existed. Along Tinnemaha Creek, Red Mountain Creek and Taboose Creek, most of the well-developed riparian vegetation was consumed by the fire including ground cover and litter. Large amounts of ash and debris where found along the stream banks and floodplains. Robust vegetation along the ephemeral and intermittent drainages also burned thoroughly during the fire, exposing layers of loose soil and sand more susceptible to wind and water erosion that can deposit and charge stream channels with ash and loose soil. In moderate and high burn severity areas, ground cover and vegetation is mostly missing, exposing soil to rainfall and runoff.

Taboose Fire BAER

**Design Flow for 5 year storm (South Lahontan/Colorado Desert Region)

			Pre-Fire Peak Flow in cubic feet per second (cfs)				Soil Burn Severity (acres)				In Cubic Feet per Second (cfs)						
Pour Point (PP) Analysis Watersheds	Drainage Acres	Drainage Area (mi2)	Q2	Q5	Q10	Q25	Unburned	Low	Moderate	High	Pre fire Q5	Q from unburned	Q from low	Q from moderate	Q from High	Post fireTotal Q5	Change in Q5 Flow
Tinnemaha Creek Watershed (PP1)	5284	8.26	30	175	439	1173	4291	300	669	24	175	142	10	56	5	213	22%
Taboose Creek Watershed (PP2)	18268	28.54	56	327	823	2197	12967	2892	2367	42	327	232	52	107	5	396	21%
Red Mountain Creek Watershed (PP3)	5624	8.79	31	180	453	1210	3526	907	1154	37	180	113	29	93	8	243	35%
Goodale Creek Watershed (PP4)	9258	14.47	40	232	584	1558	8440	391	405	22	232	211	10	26	4	250	8%
Taboose Creek at Taboose Campground (PP5)	7567	11.82	36	209	527	1406	5963	918	648	38	209	165	25	45	7	243	16%
Red Mountain Creek at First Diversion (PP6)	4285	6.70	27	157	395	1055	3320	488	454	23	157	122	18	42	6	187	19%
Red Mountain Creek at Second Diversion (PP7)	5268	8.23	30	174	439	1171	3519	722	997	30	174	116	24	83	7	230	32%
Red Mountain Creek at DWP Guage 2062 (PP8)	5433	8.49	30	177	446	1189	3519	813	1068	33	177	115	26	88	7	236	33%
Tinnemaha Creek at DWP/Stream Crossing (PP9)	4967	7.76	29	169	426	1137	4196	225	523	23	169	143	8	45	5	201	19%
Tinnemaha Creek at Residences (PP10)	16105	25.16	53	307	772	2061	12916	1236	1889	64	307	246	24	91	8	368	20%
Tinnemaha Creek at 395 (PP11)	24286	37.95	65	378	951	2537	21097	1236	1889	64	378	328	19	74	7	428	13%
Tinnemaha Road North (PP12)	2345	3.66	20	116	291	777	1351	386	608	0	116	67	19	76	0	161	39%
Tinnemaha Road South (PP13)	2684	4.19	21	124	312	832	1690	386	608	0	124	78	18	71	0	167	34%
Tinnemaha Creek at Campground (PP14)	13272	20.74	48	278	700	1869	10083	1236	1889	64	278	211	26	100	9	346	24%
															Total Post Fire Flow:		336%

From: Methods for Determining Magnitude and Frequency of Floods in California, Based on Data through Water Year 2006

By Anthony J. Gotvald, Nancy A. Barth, Andrea G. Veilleux, and Charles Parrett; 2012

*Change in flow is the increase in flow resulting from the reduction in soil infiltration after a fire based on a paper by Terry Henry.

Acres of unburned and low soil burn severity are modeled at Q5, acres of moderate soil burn severity are modeled at Q10 and acres of high soil are modeled at Q25. A weighted average is then calculated to arrive at post fire Q5.

*Spreadsheet prepared by David McComb US Forest Service

Note: Red Mountain Creek pore point is at the first diversion when it comes out of the canyon onto the alluvial fan and Goodale Creek is modelled to the community of Aberdeen.

Water Quality

Water quality in all of the creeks is typically excellent. The fire burned only a small area of the watersheds, with vegetation and soil severely burned along the reaches of Tinnemaha, Red Mountain and Taboose Creek. Additionally most of the ground cover was removed and existing riparian vegetation was consumed. When significant rainfall and runoff occurs, especially the first year post-fire, the burned areas along these creeks will contribute moderate amounts ash, burned debris and fine sediment that will cause periodic and short term episodes of degraded water quality and turbidity, and increase in channel sedimentation. This effect will be more significant along the reach of the creeks in the fire area and for a distance downstream (< mile). Further downstream, this effect will be partially lessened as the plume of turbidity and fine sediment starts to dissipate and settle over the long reach below the fire. It is possible the full length of all three creeks will have increased turbidity and water quality impairment during large storms post-fire, and will likely diminish as runoff subsides. There are burned vehicles at the Red Mountain trailhead with the threat of hazardous materials entering an adjacent spring channel flowing into Red Mountain Creek.

Geology/Geologic response

Burned Area Description:

Geology: Bedrock within the Taboose Fire burned area mainly consists of three rock groups: Mesozoic granitic rocks of the Sierra Nevada batholith, overlying Tertiary rocks, chiefly of volcanoclastic origin and quaternary alluvium. The batholith was intruded as a group of plutons principally of Cretaceous age and are composed of granodiorite and quartz monzonite (Bateman, 1992). Other portions within the burned area contains younger and older alluvial fan deposits, glacial and talus deposits, fluvial and lacustrine deposits and olivine basalt flows (Hollett, et. al., 1991).

Geomorphology: The Taboose Fire occurred on the eastern slopes of the Central Sierra Nevada mountain range and along the alluvial fans flowing down to the Owens Valley. The physiography of the burned area is dominated generally by two main zones: The alluvial fans, which generally present very moderate slopes of less than 20% and the rugged mountainous zone, which present steep (40-60%) to very steep slopes of 60+ (%) percent. Elevations in the burn area range from about 4,700 feet above sea level near Red Mountain to approximately 11,000 feet above sea level at the western boundary of the fire in the John Muir Wilderness. The Taboose Fire burned along the Tinemaha, Red Mountain, Taboose and Goodale Creeks. These four creeks, all flow in a general direction east to the Owens Valley. The Sierra Nevada Mountain Range and the Owens Valley were formed by basin and range tectonics and were transformed by glacier processes (Hollett, et. al., 1991). Landforms located within the burn area associated with these glacier processes include: lateral moraines and glacial till/talus slopes. The region is dominated by mass wasting processes including debris slides, debris flows and rock falls. Evidence of these mass wasting is widespread throughout the burn area.

Watershed Conditions

> Within the burned area of the Taboose Fire, evidence of mass wasting as debris slides, debris flows and rock fall are widespread. Now, as a result of the removal of vegetation by the fire, soils are exposed and have become weakened, hydrophobicity conditions have changed and rocks on slopes have lost their supporting vegetation. Due to these post-fire new conditions, FS roads and trails, BLM, State and County roads and campgrounds and LAWDP water systems are at risk from numerous geological hazards as rolling rocks, debris flows, debris slides and hyper-concentrated floods. Risks to human life, infrastructure, facilities, roads, trails, water bodies and natural resources is elevated in most areas in and downstream of the Taboose Fire.

Rock Fall: Very High Risk of Rock High rock fall on Taboose trail, with **High** risk less hazard on Red Mountain trail.

A. Describe Critical Values/Resources and Threats (narrative): Emergency Narratives to describe the BAER Emergency in 2500-8, Part V.A [emphasis on Risk (likelihood & magnitude), specific Value(s), and location & description of Threat(s)]

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

1.Human Life and Safety (HLS):

Forest Roads and Motorized Trails:. National Forest System and motorized trails, were assessed in order to determine the probability and magnitude of road damage or loss as a result of the changed watershed condition. Public safety on roads in the burned area is also an equally important consideration. There are approximately .5 miles of system roads and 6.2 miles of motorized trails within the Fire boundary. with 1 mile being a motorized trail along Red Lake (33E301) within the fire area. This road is native surface on decomposed granite which is very susceptible to erosion. Uncontrolled runoff can result in off-site damage and potential negative impacts to the transportation system.

The surrounding hillslopes burned mostly at moderate severity with pockets of low severity burn. Red Lake Trail Head motorized trail is managed for high-clearance vehicles. The motorized trail (33E301) contains road gradients between 7 and 12 percent.

Probability of Damage or Loss: Likely
Magnitude of Consequences: Moderate
Risk Level: ***High***

Forest Trails: The BAER team evaluated the Red Mountain Trail and Taboose Trail. The side slopes are very steep with loose rock and soil. In many areas, soil and rock are present on the trail due to vegetation burning and releasing the material. Based on the post-fire conditions and existing trail tread and topography the BAER Team does not recommend treatment on these trails. It would expose the crews to undue risk and not be effective in mitigating threats to the trail. ***No Trail Tread Treatments Recommended.***

Hazardous materials: Four vehicles severely burned at the Red Lake Trailhead adjacent to a spring flowing to Red Mountain Creek. The vehicles are still present, with the Forest pursuing removal of the vehicles and much of the contaminated top soil**.**

Human life and safety and water quality

Probability of Damage or Loss: **Very Likely**
Magnitude of Consequences: **Major**
Risk Level: **Very High**

Safety within the fire area: Based on the potential for debris flows, flooding, rock falls (on trails), etc., the BAER Team identified a serious risk to the public, employees, and Cooperator staff. The Forest issued a Forest Order closing the fire area for an unknown period of time, likely through the winter.

Probability of Damage or Loss: **Very Likely**
Magnitude of Consequences: **Major**
Risk Level: **Very High**

3.Natural Resources (NR):
Threats to Critical Natural and Cultural Resources

Off Highway Vehicles (OHV's) are a threat to natural recovery from invasion if noxious weed spreading into the fire area, reduction in soil productivity, and damage to heritage sites from Off-Highway Vehicle incursion.

OHV's can cause erosion, compaction and alter hydrologic function which precludes or reduces vegetation re-establishment after a fire. OHV's can act as a vector for invasive species introduction when seeds are attached to tires and deposited on bare ground. Heritage resources can be negatively affected by OHV's through mechanical disturbance in the site.

Vegetative recovery, soil productive and a heritage resource site are at risk from OHV incursion along several areas within the fire. Unauthorized routes in and around the fire areas have a threat to increase OHV trespass into open areas created by the fire that may lead to soil impacts and hinder vegetative recovery. The natural vegetative recovery and barriers on these roads burned. Currently there are no closure signs or physical barricades in place to advise the public from using these trails.

The area of greatest incursion risk burned at low and moderate soil burn severity, with all the vegetation consumed and low gradient,with few large rocks, making it easily traversed by an OHV.

Probability of damage or loss: **Likely**

Magnitude of Consequences: **Moderate**

Risk Level: High

Threatened and Endangered Species:-

Sierra Nevada bighorn sheep (SNBS) – *the Williamson herd unit and critical habitat are within and adjacent to this fire*. Natural processes of the fire are expected to have improved SNBS habitat by reducing pinion encroachment on lower slopes of rocky terrain. The loss of Jeffery pines trees at upper slopes adjacent to escarpments are expected to benefit sheep by reducing predator avoidance areas. *No Treatments proposed*.

Probability of damage or loss: **Possible**

Magnitude of Consequences: **Moderate**

Risk Level: Intermediate

Threats to Ecosystem Stability

Noxious and invasive weeds

Native plant communities and riparian habitats could be degraded by invasive species introduction and spread in uninfested areas within the fire area. In addition, the potential introduction of propagules of other species during fire suppression has the potential to establish new weed infestations. These new infestations would affect the structure and habitat function of native plant communities and ecosystems within the burn area and could require substantial sustained efforts to eradicate if they go undetected for a long period of time. The fire occurred in a relatively accesible area of the forest that would be feasible to visit several times over the course of the next growing season to search for new or expanded infestations.

There is a high risk that invasive weeds could get established in the Sagebrush-bitterbrush, and Riparian stream habitat plant communities. During initial attach Fire vehicles and CalFire dozers were not washed before entry to the fire area. The fire camp at Big Pine park contains Russian Thiste and puncture vine, fire vehicles were driving from fire camp to the fire everyday. Approximately .5 miles of dozer line were constructed on the Forest along with 40+ miles of handline/scratchline and approximately 7 miles of Forest roads and motorized trails. A weed washing station was set up after several days. Several invasive species are known from the forest, including cheatgrass, red brome and Russian thistle, which are scattered throughout the shrub vegetation, denser near roads. They will likely spread into the recovering shrub vegetation in the fire area, but there is no effective control for these species, so no treatment is proposed. North of the fire near McMurray Meadows (along the travel route between ICP and the fire, there is a small infestation of the noxious weed hairy whitetop.

Also, new species of weeds may have been introduced by unwashed fire suppression vehicles, but these will not be evident for at least several months when the seeds germinate.

Emergency Determination:

Probability of damage or loss: **Likely**

Magnitude of Consequences: **Moderate**

Risk Level: High

4.Cultural and Heritage Resources: There is one known historic mining site and several newly discovered prehistoric and historic archaeological sites and isolated finds in the Taboose Fire vicinity, none of which is known or suspected to be at risk to potential mass wasting events. A majority of the fire footprint, however, has not been surveyed. It remains possible that as yet unidentified cultural resources exist in high severity burn areas that may be at risk to mass wasting events. This potential risk cannot be meaningfully assessed or quantified in the absence of cultural survey and site data. No treatments are recommended at this time.

All treatments proposed by this report will evidence compliance Section 106 of the National Historic Preservation Act (NHPA) prior to implementation to ensure potential effects to cultural resources are considered, including the conduct of cultural resource surveys as appropriate. It is anticipated that all treatments can be designed and implemented in a manner that avoids adverse effects to historic properties.

(B) Emergency Treatment Objectives

To allow safe passage of water to protect infrastructures, watersheds, and cultural sites, from accelerated sheet and rill erosion. Also, to protect watersheds from the spread of noxious weeds. Risk determined is dependent on the design storm selected and downstream values at risk. The BAER Team used a set of average storms (2, 5, and 10-year events) emergency planning measures were designed to mitigate and minimize anticipated risks. The BAER Team used a 2-year design storm, the values at risk were evaluated to determine if an emergency exists for a typical winter storm.

(C) Probability of Completing Treatment Prior to First Major Damage-Producing Storm

a. Land %:90

b. Channel %:n/a

c. Roads %:90

d. Trails %:n/a

(D) Probability of Treatment Success

Treatment	Years After Treatment		
	1	3	5
Land	90	95	100
Channel			
Roads	85	95	100
Trails			

(E) Cost of No-Action (Including Loss):$41,080 + increased risk to life and safety

(F) Cost of Selected Alternative (Including Loss):$35,070 – less risk of life and safety due to closure enforcement and interagency coordination.

(G) Skills Represented on Burned-Area Survey Team

☒ Hydrology	☒ Soils	☒ Geology	☐ Range
☐ Forestry	☒ Wildlife	☐ Fire Management	☐ Engineering
☐ Contracting	☐ Ecology	☒ Botany	☒ Archaeology
☐ Fisheries	☐ Research	☐ Landscape Architect	☐ GIS

Team Leader: Todd Ellsworth

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FAX:

(A) 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:

NX-1: Noxious weed survey and detection:

Priority areas will be surveyed and treated in spring and summer of 2020 when plants are detectable but early enough to treat effectively (prior to maturation and dispersal of seed). There are approximately 5.5 miles of fireline (hand and dozer) on national forest lands to be surveyed. An additional 10 point locations (drop points and sling load areas) will be surveyed. Infestations will be inventoried using the INF Invasive Plants Data Form, mapped with a GPS, photographed, and flagged with noxious weed tape. Where feasible, new or isolated infestations will be treated by hand during the same visit as the surveys. All treatments, including herbicide if needed, will be conducted in accordance with the *Weed Eradication and Control on the Inyo National Forest* Environmental Assessment (INF 2007) or the newer Environmental Assessment for the *Forest-wide Invasive Plant Treatment Project* (INF, expected early 2020). Herbicide would be used only where manual or mechanical methods are not effective or feasible.

Personnel	**Daily Rate**	**# Days**	**Cost**
GS-11 Botanist	355	5	$1,775
GS-7 Biological Technician (Plants)	188	5	$940
Fleet/Materials	**Cost**	**Miles/Units**	**Total**
Mileage (70 miles/day x 5 days)	0.55	350	$192.50
Total:			$2,907.50

Channel Treatments: N/A

Road Treatments:

R1- Motorized Trail Stormproofing: Restore and improve drainage function. Drainage function will be restored through installing 6 to 8 new drainage features (rolling dips) on Forest motorized trail # 33E301 (1 mile). Project layout is included in the cost.

Treatment	Units	# of Units	Unit Cost	Total Cost
R1- FS System Motorized Trail 33E301 – Implementation layout, Stormproofing and road stabilization treatments.	Miles	1.0	$5,000	$5,000

Protection/Safety Treatment

P1- OHV Barricade Installation: Install closure signs and physical barricades at the Forest Boundary where unauthorized route U-11S100 enter the burn area to discourage OHV trespass into open areas caused by the fire. The BAER Team considers this treatment to be the minimum necessary to achieve a reduction in risk to critical values and is less expensive and intrusive than installing fencing.

OHV Barricade Installation				
Item	**Unit**	**Unit Cost**	**# of Units**	**Cost**
2 GS-9 Hydro	Day	$1000	2	$2000
Supplies (barricade)	Each	$1000	1	$1000
Vehicle gas mileage	Miles	$0.50	300	$150
Total Cost				$3150

H1 - Hazardous material stabilization: Four vehicles have completely burned at the Red Lake Trailhead. The associated hazardous refuse has the potential to move offsite and contaminate Red Mountain Creek. Using straw wattles or sand bags, the area around the burned cars will be contained, keeping the burned refuse from moving offsite and into Red Mountain Creek.

Hazmat Stabilization				
Item	**Unit**	**Unit Cost**	**# of Units**	**Cost**
2 GS-9 Hydro	Day	$1000	2	$2000
Stabilization Supplies	Each	$180	10	$1800
Vehicle gas mileage	Miles	$0.50	300	$150
Total Cost				$3950

CL1 - Closure signs and additional Patrol: Place fire Closure signs at Tinemaha, Taboose and Goodale campgrounds. We propose placing a BAER hazard sign at the Taboose trail head Kiosk. This is within the Forest closure area, however, we believe an additional hazard sign is needed at the trailhead given the hazards of hiking the trail and the Forest is implementing a "soft" closure. Place signs at strategic entry points to the fire. Place fire closure signs on Taboose Road (11S04) before the fire area, 33E305, motorized trail coming down from Fuller meadow, 11S02 Goodale Loop Road and 33E302 at the Private Land boundary where Fuller road enters the Forest. Additional patrols are needed to ensure the closure is enforced and

inform the public as to why the closure is needed. Posting of areas burned will alert the public to potential dangers of increased flood flows and falling rocks.

Closure signs and patrol				
Item	**Unit**	**Unit Cost**	**# of Units**	**Cost**
1 GS-7 Patrol	Day	$350	20	$7000
2 GS-7 sign installation	Day	$700	3	$2100
Signs (in campgrounds)	Each	$50	4	$200
Sign supplies on roads	Each	$200	4	$800
Vehicle gas mileage	Miles	$0.50	500	$250
Total Cost				$10,350

IN-1 Interagency Coordination:
Interagency coordination started during the fire and continued throughout the BAER Assessment. Continuing this coordination by providing the BAER Assessment Report, specialist reports and attending meetings is anticipated. The Forest held an Interagency meeting with many of the cooperators and stakeholders on Monday September 30. Follow up flood preparedness meetings were scheduled along with numerous field trips. In addition, letters detailing potential physical responses and impacts from the fire that may influence safety in and downstream of the fire area will need to be composed and sent to all public and private stakeholders at risk from increased sediment and flooding. Funding is requested for agency coordination, and Implementation team lead, to ensure continued coordination with cooperating agencies, prompt implementation, and tracking of BAER treatments, and installation of burn area warning signs. The facilitation may include: phone calls, meetings, and field trips to the affected areas.

Interagency Coordination				
Item	**Unit**	**Unit Cost**	**# of Units**	**Cost**
1 GS-12 BAER coord.	Day	$500	6	$3,000
Total Cost				$3,000

Trail Treatments: n/a

Structures: n/a

(B) Monitoring Narrative: (Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

Effectiveness Monitoring

The 2500-8 report requests funds to monitor the effectiveness of road treatments on Taboose Fire roads.

1.*Monitoring Questions*

- Is the road-tread stable?

- Is the road leading to concentrating runoff leading to unacceptable off-site consequences?

2. *Measurable Indicators*
- Rills and/or gullies forming of the road
- Loss of road bed.

3. *Data Collection Techniques*
- Photo documentation of site
- Inspection Checklist (attached)

4. Analysis, evaluation, and reporting techniques
- Monitoring will be conducted after storm events.

If the monitoring shows the treatment to be ineffective at stabilizing road and there is extensive loss of road bed or infrastructure an interim report will be submitted. A several page report would be completed after the site visit. The report would include photographs and a recommendation on whether additional treatments are necessary.

Road Inspection Checklist
Date:_____ Inspector_____
Time:_____ Forest Road_____
Describe locations reviewed during inspection:_____
Was there road damage?
GPS _____
Describe damage and cost to repair? (GPS)_____
Photo taken of road damage_____

a. Recommended actions to repair:_____

The 2500-8 report requests funds to monitor the effectiveness of *closure order* treatments on the Taboose Fire.

Monitoring Questions
- Are there incursions into the fire area?

- Are incursions on system roads within the fire area or are people going off road leading to unacceptable off-site consequences?

- Are visitors hiking the trails?

2. *Measurable Indicators*
- Number of incursions
- Loss of road bed.

3. *Data Collection Techniques*

- Photo documentation of site
- Inspection Checklist (attached)

4. *Analysis, evaluation, and reporting techniques*

- Monitoring throughout the closure, emphasizing holidays.

The report would include photographs and a recommendation on whether additional treatments are necessary.

Closure Inspection Checklist
Date:_____ Inspector_____
Time:_____ Forest Road_____
Describe locations reviewed during inspection:_____
Was there incursion?_____
Were there hikers or vehicles in trailhead parking lots?_____.
GPS _____
Describe incursion and road access? (GPS)_____
Photo taken of road damage_____

Recommended actions:_____

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

Treatment	Request
Land Treatment	
Noxious weed detection Survey	$2,907.5
Channel Treatments	N/A
Road and Trail Treatments	
Storm Proofing (33E301)	$5,000
Protection and Safety	
Closure signs and patrols	$10,350
OHV Barricade	$3,150
HAZMAT	$3,950
Interagency Coordination	$3,000
Monitoring	
Road and Closure monitoring	$1,500
Total	$29,857.50

Part VII - Approvals

(A) _____ _____
Forest Supervisor (Signature) Date

(B) _____ _____

Regional Forester (Signature) Date