BAER Rpt
Tank Hollow

MESSAGE SCAN FOR ROBERT A. GECY

To Dave
CC PaulF
CC R.Gecy

From: NELSON, DEANNA R.
Postmark: Jan 14,97 4:47 PM Delivered: Jan 14,97 4:47 PM

Subject: Tank BAER accomplishment rpt.

Comments:
Dave: I roughed out an accomplishment summary, but left some blanks on dates, costs, acres of seeding. Could you fill these in, add anything I missed and forward this on to Paul Flood. Huge thanks.
Paul: Understand from Pete Stender that these will be due in the next month. I roughed out an "accomplishment" addition to the original proposal. Could you finalize this and get it up to Pete in the RO. Todd Neilson sent me a short summary of their EWP work that you could include as an enclosure; its one page. Couldn't contact you today to discuss this so I went ahead and did what I could. I'm leaving tomorrow for a month so hope this will help a little.
Thanks. Dea

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FS-2500-8 (8/93)

USDA-FOREST SERVICE Date of Report: 1 - 14 - 97

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated EFFS-FW22 funds
[X] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[ ] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)

[ ] 2. Interim Report
[ ] Updating the initial funding request based on more accurate site data and design analysis
[ ] Status of accomplishments to date

[X] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Tank Hollow B. Fire Number: UT - UTS - 075

C. State: Utah D. County: Utah
E. Region: Intermountain F. Forest: Uinta
G. District: Pleasant Grove

H. Date Fire Started: 8/5/96 I. Date Fire Controlled: 9/1/96 (est)
J. Suppression Cost: $850,000 thru 8/10/96, $1.25mm thru 9/1/96 (est)

K. Fire Suppression Damages Repaired with EFFS-PF12 Funds:
1. Fireline waterbarred (miles) none
2. Fireline seeded (miles) none
3. Other (identify) Reclosure of user developed ATV trails opened

L. Watershed Number: Provo River, HUC #16020203

M. NFS Acres Burned: 500 (est) Total Acres Burned: 2800
Ownership type:
(2180)State (0)BLM (50)PVT (70)Orem City

N. Vegetation Types: Oak-Maple, Sagebrush-Grass

O. Dominant Soils: Landtypes LS1 (50%), LS4, FM8, MF7, MF9 (10% each), MF1, MF2 (5% each), source 1981 Pleasant Grove Soil Survey

P. Geologic Types: Sandstone Limestone - Oquirrh Formation (85 %)
Shale - Manning Canyon Formation (15%)

Q. Miles of Stream Channels by Order or Class:
_____ interm. 7 ephem. 5

R. Transportation System:
Trails: 2.25 miles Roads: 4.25 miles

PART III - WATERSHED CONDITION

A. Fire Intensity (acres): 1605 (low) 985 (moderate) 210 (high)

B. Water-Repellent Soil (acres): < 1%

C. Soil Erosion Hazard Rating (acres):
0 (low) 1165 (moderate) 855 (high)
390 (v. high) 390 (extreme)

D. Erosion Potential: 3.45 * tons/acre
E. Sediment Potential: 1.85 * cubic yards / square mile
* Modeled for the 730 acre watershed where seeding treatment prescribed, representative of 75% of burned area. Remainder of burn area ranges from 4 to 4.6 tons/ acre and 1600 yds./ac. Method: PSIAC sediment yield model.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: .75 years
B. Design Chance of Success: 50 percent
C. Equivalent Design Recurrence Interval: 5 years
D. Design Storm Duration: 1 hours
E. Design Storm Magnitude: .5 inches
F. Design Flow: 112 cubic feet per second per square mile
G. Estimated Reduction in Infiltration: 70% percent
H. Adjusted Design Flow: n/a cubic feet per second per square mile

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Impacts to municipal water sources and delivery systems, and waters of exceptional quality, are predicted as a result of an intense thunderstorm over the burned area. NOAA long range forecasts indicate a 50% chance of a thunderstorm occurence over the next 45 days. For the treatment watershed, a sediment delivery of approximately 200 tons could be yielded from burned areas on State of Uath and National Forest lands. Cost of repairs from sediment related damages include: (1) Sediment removal and redevelopment of spring box collectors and piping, (2) Repair of breech in 36 inch welded steel pipeline, and repair of supports and footings, and (3) sediment removal from a diversion impoundment. In addition, there would be degradation in the water quality of the Provo River, a designated State of Utah water of exceptional quality, and blue ribbon trout stream. Costs of even the smallest repair to any of these developments, if damaged, would run to many thousands of dollars.

General:

Only the very upper reaches of the fire were on National Forest System lands.

A typical summer burn on the Wasatch Front begins in the foothills. Annual grasses there are cured and provide a fuel source that allows the fire to spread rapidly into the mountain brush zone. The brush carries the fire upslope in a V burn pattern into the spruce fir zone. Depending on humidity and moisture content in the soil duff and trees the fire eventually stalls or burns to the ridge. Lateral movement is influenced by topography and winds, but the primary fire movement is in a characteristic V pattern. The fire duration is generally short and explosive.

Fire behavior on the Tank fire was unusual. Relatively cool temperatures (for August) accompanied by lateral cross winds along the foothills moved the fire along the contour. Fire intensities varied markedly, even in the same fuel types.

Fortunately aggressive fire suppression efforts (mostly air drops) kept the fire from burning into the Dry Canyon drainage, which has an extreme erosion danger.

Some mesic sites in woody draws experienced only a light ground fire. Upland sites had moderate and in some cases high intensity fire activity. The result was a mosiac burn pattern over the landscape. Most of the shrub species on site sprout from the roots and will respond vigorously. Live roots from grasses were intact below the ash level and grasses at most sites and will also resprout. Ample forbs survived to provide an above ground seed source. Because the duration and intensity of the burn was light in most places the below ground seed bank is intact.

Because of favorable conditions and aggressive fire suppression on the border of the Dry Canyon drainage we dodged a bullet....this time. Modeling indicates that unless we get a storm greater than a five year storm we should be ok. A storm event greater than that means that all bets are off and the soil moves no matter what.

In most cases the favorable conditions for natural establishment of ground cover will ensure that natural regeneration of ground cover will be more rapid and dense than a seeding effort. However there are several slopes below Little Baldy within a 730 acre burned watershed tributary to the Provo River, that would benefit from additional seeding.

The seed mix is identified elsewhere in this report.

Wildlife activity has resumed. Deer were observable on site from the air. Many small mammals survived the fire under ground and are also active. Neotropical birds were active. Insects and Arachnids were active as well.

B. Emergency Treatment Objectives:
(1) Removal of threat to water pipeline and diversion impoundment
(2) Reduce threat to municipal spring source
(3) Reduce effects on water quality in the Provo River

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

Land 50 % Channel _____ % Roads _____ % Other _____ %

D. Probability of Treatment Success

	<----Years after treatment-----> 1	3	5
Land	100%		
Channel			
Roads			
Other			

E. Cost of No-Action (Including Loss): **See Part V Description of Emergency**

F. Cost of Selected Alternative (Including Loss): $ 4,356.00

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	[x] Soils	[x] Geology	[ ] Range
[ ] Timber	[x] Wildlife	[ ] Fire Mgmt.	[x] Engineering
[ ] Contracting	[x] Ecology	[ ] Research	[ ] Archaeology
[ ] _____	[ ] _____	[ ] _____	[ ] _____

Team Leader: **Paul Flood**
Phone: 801 - 524 - 5107 Electronic Address: R04F19A

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.

This fire has qualified for exigency and non-exigency EWP trreatments through the NRCS. A team was assembled on 8/8/96, report prepared on 8/9/96 (copy available thru BAER team leader). Treatments will be implemented starting 8/12/96. The report found significant potential for damage to life and/or property in the subdivisions surrounding the western part of the fire, and prescribed in-drainage sediment filters in several canyons.

The eastern portions of the fire drain directly into the Provo River gorge, where houses and buildings do not occur. However, the canyon is a source of water for many municipalities, including Sandy, Draper, Provo, and Orem. There is a considerable amount of water systems infrastructure directly down hill from the burned area, including spring box collection systems for the cities of Provo and Orem, pipeline delivery systems for Orem, Provo, and the Central Utah Project, and diversion impoundments for local irrigation companies. Sediment delivery and water quality degradation is also a direct concern for the Provo River itself.

Non-exigency EWP treatments were prescribed, where possible, for Orem City spring sources on private lands. The threats to the remaining water developments have a source on State of Utah and National Forest watersheds. Because of the nature of the drainages involved, it is not possible to protect the developments on private land, and mitigation must occur in the upper watershed areas.

Upper watershed seeding treatments were designed to remove or reduce sediment related impacts to these developments and to the river itself. The treatments will be applied on National Forest lands using EFFS-FW22 funds. The State of Utah has elected not to treat any lands within the at risk watershed. National forest lands to be treated consist of 20 acres of moderate intensity burns. Potential State of Utah lands in the at risk watershed that could be treated include about 120 acres of moderate and high intensity burns. Based on acreages and present condition, the most effective risk reduction will occur from treatments of State of Utah lands, although treatment of Natural Forest lands will help some.

While the natural revegetation process will provide for the most rapid establishment of ground cover on most of the fire, the south facing slopes of

Little Baldy are steeper and burned at higher intensities. The slopes are at a higher risk of erosion and augmentation of natural revegetation is advisable.

The seeding treatments are intended to increase ground cover from a post fire average of 20% to a post treatment (after 1 year) average of 50%. If both State of Utah and National Forest lands are treated, the increases in ground cover will have the potential to reduce sediment delivery (as a result of a .5 inch in one hour thunderstorm event) to Provo City springs and the Provo River, from an estimated 210 tons to about 100 tons. Treatment of National Forest lands alone will result in considerably less reduction in sediment delivery.

There are no practicable methods to capture and store this sediment in the lower watershed. The channel bottom is steep, narrow and confined with very little storage area or opportunities to install sediment barriers. A portion of a Central Uath Project pipeline crosses this drainage, where it is elevated on steel supports about 10 feet above the channel bottom. While there appears to be sufficient cross sectional area to pass predicted sediment flows, reducing sediment loads would considerably reduce the risk to this structure and the Provo City spring source below it. Sediment reaching the Provo River would travel approximately 2000 feet of blue ribbon trout stream before settling out behind the Murdock Canal diversion dam.

Prescribed Seed Mix:

20 acres will be treated with a target rate of 30 pure live seeds (PLS) per square foot.

Seed mix components:

Western Wheat Grass (Agropyron Smithii) - 45%
    7.1 lbs./ acre @ $3.00/ lb. = $21.40/ acre
Bluebunch Wheatgrass (Agropyron Spicatum) - 40%
    5.2 lbs./ acre @ $4.00/ lb. = $20.80/ acre
Alfalfa (Medicago Sativa) - 5%
    .4 lbs./ acre @ $1.50/lb. = $0.60/ acre

Totals: 12.7 lbs./ acre @ $42.80/ acre

The south facing slopes of Little Baldy are ecologically extreme sites. The recommended grass species are adapted to the site and will provide ground holding capabilities. Alfalfa is included as nitrogen fixer to increase the success and vigor of the grass establishment.

Accomplishment

Authorization to spend $4,356 of Emergency Burn Rehabilitation funds for treatment of the Tank Fire was received in late August, 1996. Seed was ordered immediately and Maple Leaf Industries of Ephraim, Utah, was able to provide the species needed at the lowest price. Seed was acquired at $0.00 per pound PLS, or $43.96 per acre.

On October X, 1996, the seed was broadcast from a helicopter onto X acres. Cost of the helicopter was $XX/hr. and the project required X hours of flight time. Weather conditions were satisfactory; the site received precipitation...

Another X acres was hand-broadcast by volunteers on several Saturdays in October.

The NRCS spent nearly $28,000 of Emergency Watershed Protection funds on the Tank Fire site; Orem City contributed $9,200 to the project. A summary of EWP accomplishments is enclosed.

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

Line Items	Units	Unit Cost $	NFS Lands Number of Units	NFS Lands EFFS-FW22 $	NFS Lands Other $ ident.	Other Lands Number of Units	Other Lands Fed $ ident.	Other Lands Non-Fed $ State ident.	All Tota $
A. LAND TREATMENTS									
Seed Mix	acres	42.80	20	856.00					856.00
pack string to haul seed	string	350	1	350.00					350.00
seed crew	crew	750	1	750.00					750.00
B. CHANNEL TREATMENTS									
C. ROADS AND TRAILS									
D. STRUCTURES									

E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT

Salary & 1 Recon Flight	Total	2,400	1					2,400

F. TOTALS	Total	4,356	1					4,356

PART VII - APPROVALS

1. _____ _____
Forest Supervisor Date

2. _____ _____
Regional Forester Date