Date of Report:
7/2/02 (initial request)
1/31/03 (accomplishment)

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated WFSU-SULT 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)

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

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Ponil Complex

B. Fire Number: NM-N2S-087

C. State: NM

D. County: Colfax

E. Region: 03 Southwestern

F. Forest: 02 Carson NF

G. District: 07 Questa RD, Valle Vidal Unit

H. Date Fire Started: June 6, 2002

I. Date Fire Contained: June 17, 2002

J. Suppression Cost: $12,900,000 (as of 6/22/02)

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 12 miles
2. Fireline seeded (miles): 0 miles
3. Other (identify): Handline waterbarred 2 miles

L. Watershed Number: 1108000202 Cimarron Creek

M. Total Acres Burned: 92,200 acres
NFS Acres (23,900 ac.) Other – Philmont BSA (28,220 ac.) State (5,430 ac.) Private (34,650 ac.)

N. Vegetation Types: Ponderosa pine/Gambel oak, Blue grama/Carex, Blue grama/Kentucky bluegrass, White fir/Doulas fir, Ponderosa pine/Arizona Fescue

O. Dominant Soils: Typic Eutroboralfs, Lithic Eutroboralfs, Eutric Glossoboralfs, Typic Dystrochrepts, Cumulic Haploborolls

P. Geologic Types: Sandstone of the Poison Canyon formation and alluvium derived from sandstone.

Q. Miles of Stream Channels by Order or Class:

1st order = 30 miles, 2nd Order = 22 miles, 3rd Order = 20 miles.

R. Transportation System

Trails: 0 miles Roads 36 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 14,237 ac. (low) 3,617 ac. (moderate) 6,047 ac. (high)

B. Water-Repellent Soil (acres): Approximately 10,000 ac.

C. Soil Erosion Hazard Rating (acres):
12,779 ac. (low) 1,435 ac. (moderate) 4,975 ac. (high)

D. Erosion Potential: 4.2 tons/acre

E. Sediment Potential: 1,304 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 10

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

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 3.8

F. Design Flow, (cubic feet / second/ square mile): 124

G. Estimated Reduction in Infiltration, (percent): 23

H. Adjusted Design Flow, (cfs per square mile): 160

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

The Ponil Complex began on June 2, 2002 as three fires – Office, Metcalf and South Ponil. These fires eventually merged together and became the Ponil Complex. The majority of the burned area (approximately 67 percent) is located on private land. The Philmont Scout Ranch (Boy Scouts of America), Kimberlin Ranch, Vermejo Ranch and Chase Ranch are primary private land owners involved. Other parties involved include the

State of New Mexico Elliot Barker Wildlife Refuge (6 percent) and the Carson National Forest, Questa Ranger District, Valle Vidal Management Unit (27 percent).

The Ponil Complex fire has burned primarily within the Ponil sub watershed system of the Cimarron Creek watershed (HUC 1108000202). The fire area encompasses the North Ponil, Middle Ponil and South Ponil drainages and their tributaries.

Burn severity is a measure of hydrologic response due to loss of canopy, groundcover and alteration of surface soil/water interactions that are caused by a wildfire. Burn severity is summarized as follows:

6,047 acres of high severity (24%),
3,617 acres of moderate severity (14%), and
14,236 acres of low severity and un-burned (62%).

Threats to water quality:

Onsite Productivity Values:

(a) Riparian Habitats: These areas are at risk due to changes in peak flows, which will result in channel erosion and loss of the riparian vegetation component.
(b) Meadows and Toe slope Grasslands: Increased peak flows in first order and smaller channels will result in increased rates of surface sheet erosion and gully erosion, and consequent drying of the grasslands, resulting in encroachment of ponderosa pine. These grasslands are important to elk herds, deer herds, bears, and small rodents.
(c) Aquatic Habitats: Changes in peak flows, ash flows, and sediment concentrations will result in temporary loss of small fish populations, and macro-invertebrate populations. Loss of these populations will reduce habitat quality for the Rio Grande cut throat trout habitats. The Rio Grande cut throat trout is a species of concern in Northern New Mexico.
(d) Water Quality: (State of NM 303(d) List for Assessed Stream and River Reaches, 2000 to 2002)
    1. North Ponil Creek from the confluence with South Ponil to the mouth of McCrystal Creek has been identified as an impaired water body. The uses not fully supported are a High Quality Cold Water Fishery and Irrigation. Currently, water quality in this reach is not attaining this use due to temperature, turbidity, total phosphorus, and stream bottom deposits.

    2. Middle Ponil Creek from the confluence with South Ponil Creek to the headwaters is identified as an impaired water body. The use not fully supported is a High Quality Cold Water Fishery. Currently, water quality in this reach is not attaining this use due to temperature, turbidity, and stream bottom deposits.

    3. Ponil Creek from the confluence with the Cimarron River to the confluence of North Ponil and South Ponil Creek has been identified as an impaired water body. The use not fully supported is a High Quality Cold Water Fishery. Currently, water quality in this reach is not attaining this use due to water temperature, conductivity, turbidity, and stream bottom deposits.

The State of New Mexico has developed a Total Maximum Daily Loading (TMDL) and management plan for water bodies within the Ponil watershed. This plan seeks to protect the designated uses identified for these water bodies.

Offsite productivity values:
The designated uses for all reaches of tributaries to the Cimarron River north and northwest of US Highway 64 include domestic water supply, irrigation, high quality coldwater fishery, livestock watering, wildlife habitat, municipal and industrial water supply, and secondary contact recreation. Increases in sediment yields, temperatures, and stream bottom deposits resulting from increased erosion, and runoff peak flows will have a negative impact on most of these water uses, but especially the high quality coldwater fishery designation.

Since there is approximately 30 stream miles between the fire boundary and the town of Springer there is a low to moderate chance that problems will be realized in Springer municipal water supply.

Due to estimated changes to peak flows in Bonita Canyon resulting from the fire there is an increased risk to Dan Beard Trail Camp until restoration measures are implemented (Philmont BSA).

Due to changes in Middle Ponil Canyon and Bonita Canyon there is a slight chance of increased risk to facilities near the stream at Ponil Base Camp.

Loss of long term site productivity:
Increased levels of surface soil erosion and sediment delivery are predicted as an effect of the high and moderate burn severity areas within the Ponil Complex fire area. The expected increased runoff and sediment delivery to the drainage network within the fire area will have a negative effect on the existing channel treatments located within and near the fire area. The initiation of new and acceleration of existing erosion poses a threat to long-term soil productivity, and increases the risk of water quality impacts and threats to downstream resources.

Threats to cultural resources:
Increased levels of surface soil erosion are predicted as an effect of the high and moderate burn severity areas. This increased rate of erosion poses a threat to cultural resource site stability, especially in the Ring Town and Ponil Park areas. Cultural resources sites affected include historic townsites, camps, cemeteries, logging mills and industrial sites, and pre-historic lithic scatters.

Threats to property:
There is a moderate to high risk of damage and loss to existing structural erosion control measures in Seally and Bonita Canyons. There is a moderate threat to property downstream of the Valle Vidal Management Unit as a result of increased peak flows: Dan Beard Trail Camp on Bonita Canyon and the Ponil Base Camp (Philmont BSA) facilities near the stream on Middle Ponil Creek . There is also a moderate risk of damage to FDR 1950 in the Lookout Canyon area.

B. Emergency Treatment Objectives:

Protect existing investments in structural erosion control measures from damage or loss in Seally and Bonita Canyons.

Control sediment delivery and transport in Seally, Bonita and Hart Canyons to mitigate effects to water quality downstream of the fire perimeter, specifically Middle Ponil, South Ponil and North Ponil Creeks.

Re-establish surface vegetative ground cover on moderate and high burn severity areas to prevent unacceptable soil loss, cultural resource site degradation and unacceptable losses of long term productivity.

Protect cultural resources at Ponil Park and Ring Town from loss and damage due to increased surface soil erosion and increased peak flows.

Protect fishery and aquatic habitats from degradation in Seally Canyon, Middle Ponil and North Ponil Creeks.

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

Land **75** % Channel **<50** % Roads **<50** % Other **<50** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	60	70	80
Channel	70	75	75
Roads	75	80	80
Other			

E. Cost of No-Action (Including Loss): $1,516,300

F. Cost of Selected Alternative (Including Loss): $1,013,040

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	[x] Soils	[ ] Geology	[ ] Range	[ ]
[x] Forestry	[x] Wildlife	[ ] Fire Mgmt.	[ ] Engineering	[ ]
[ ] Contracting	[ ] Ecology	[ ] Botany	[x] Archaeology	[ ]
[x] Fisheries	[ ] Research	[ ] Landscape Arch	[x] GIS	

Team Leader: Greg Miller, Carson NF

Email: gmiller@fs.fed.us Phone: 505.758.6251 FAX: 505.758.6213

H. **Treatment Narrative:**

Land Treatments:

Aerial seed with fixed wing aircraft approximately 6,000 acres of high burn severity areas at a target rate of 50 PLS per square foot. Proposed seed mix is slender wheat grass (30%), mountain brome (30%), annual ryegrass (30%), and cereal barley (10%). This treatment is intended to restore vegetative ground cover to these sites as quickly as possible, minimize surface soil erosion and provide surface stability to the affected cultural resource sites.

Accomplishment as of report date:

Approximately 9,000 acres seeded at 33 seeds per square foot. This accomplishment is 33 percent above planned accomplishment for this activity.

The accomplishments and costs associated with the improvements described above are reported in Part VI of this report under Line Item A – Land Treatments as "aerial seeding". Costs reported include seed and application services.

Channel Treatments:

Rock and erosion cloth head cut treatments will be used in tributaries to Lookout Canyon, Hart Canyon, North Ponil Creek, and Sealy Creek to stop dis-continuous gullies before they become continuous. One tributary to Sealy Creek has some existing head cut treatments that need re-construction or heavy maintenance so they will not be lost in expected higher flows resulting from the fire. The probability of success for this treatment is good to excellent.

Rock grade stabilizers will be used in first order tributaries to Hart Canyon, Lookout Canyon, North Ponil Creek, and Sealy Creek. The purpose of these stabilizers is to stabilize the channel gradient and prevent extension of erosion through grassy meadows. The probability of success for this treatment is good.

Log check dams in a tributary to Sealy Canyon will be reconstructed or replaced. One of these dams was consumed by the fire and several others have started to fail and will be washed out by the increased flows resulting from the fire. The probability of success with this practice is good.

Cleaning existing debris basins and reconstructing spillways in existing debris basins is necessary in Sealy Creek and Bonita Creek. These basins are full of sediment and flow through the basins is eroding the spillways. Loss of these spillways will release the stored sediment into the channels reducing the water quality and aquatic habitat. Effectiveness of this treatment is expected to be good to excellent.

One new debris basin is recommended for a tributary to Hart Canyon. This basin is recommended to control increased runoff and increased sediment loads resulting from the fire. Construction of this basin will help control the channel gradient thus reducing the probability of down cutting higher in the watershed. Effectiveness of this practice is good to excellent.

Accomplishment as of report date:

One (1) new sediment basin constructed in Hart Canyon.
One (1) existing sediment basin re-constructed in Bonito Canyon.
Three (3) existing sediment basins excavated to restore storage capacity.
Four (4) rock armor spillways constructed.
(NOTE: Work items described above accomplished via a heavy equipment contract.)

AD work crews and Forest personnel also constructed approximately 150 small erosion control structures in Lookout Canyon, Hart Canyon, North Ponil Creek and tributary drainages to Seally Canyon. The structures included one rock dams, rock baffles, rock and filter fabric drop structures, log sills and weirs.

The accomplishments and costs associated with the improvements described above are reported in Part VI of this report under Line Item B – Channel Treatments as "stream channel protected". Costs reported include materials and supplies, contract costs and contract oversight, crew costs and transportation and crew oversight.

Roads and Trail Treatments:

Culvert risers are recommended for three culverts under the Cerrososo Road in the Lookout Canyon watershed. This treatment is designed to reduce scour around the culvert entrance and exit. They will also induce sediment deposition up stream of the culverts raising the channel gradient and thus reducing gully erosion up channel. Probability of success is excellent.

Accomplishment as of report date:

No accomplishment in this item occurred. Engineering evaluation of the proposed locations for culvert risers determined the proposed treatment was not feasible.

The accomplishments and costs associated with the improvements described above are reported in Part VI of this report under Line Item C – Roads and Trails.

Structures:

Three rock gabion dams are recommended for a tributary to North Ponil Creek. These dams are intended to prevent down cutting through the alluvial soil along the main channel of North Ponil Creek. These structures will also help stabilize a historic cemetery. The effectiveness of this type of structure is good when they are properly designed and installed.

Accomplishment as of report date:

Three (3) gabion rock structures were constructed to prevent stream channel down cutting and lateral movement near Ponil Park cemetery. Small rock and filter fabric drop structures were constructed to protect archeological resources in Seally Canyon.

The accomplishments and costs associated with the improvements described above are reported in Part VI of this report under Line Item D – Structures "archeological sites protected". Costs reported include materials and supplies, contract costs and contract oversight.

Priority of treatments:

Due to the large number of proposed channel treatments and the very short timeframe that exists prior to the first expected damaging storm, the BAER Assessment team has recommended the following priorities.

Priority 1 – Protect cultural resource sites at Ponil Park and Ring Town.

Summary of treatments: gabion retention structure in tributary to North Ponil Creek to protect Ponil Park cemetery, stabilize head cuts in Seally Canyon between Ring Town and cemetery, install row of straw bales above 2 surviving wood structures at Ponil Park to protect from potential sedimentation from surface soil erosion upslope of the structures.

Priority 2 – Protect existing structural investments and property at risk in Bonita, Seally and Lookout Canyons and North Ponil Creek.

Summary of treatments: re-build spillways on existing sediment detention basins (2 structures) in Bonita Canyon, excavate stored sediment, stabilize channel bottoms below spillways with rock and wire structures, stabilize inlet with rock and wire structure. Re-build spillway on existing sediment detention basin (1 structure) in Seally Canyon, excavate stored sediment, stabilize channel bottom below spillway with rock and wire structures. Stabilize spillway on existing sediment detention basin (1 structure) in North Ponil Creek, excavate stored sediment, stabilize channel bottom below spillway with rock and wire structures. Stabilize head cut between 1920 road and North Ponil Creek with rock and fabric drop structure. Install culvert risers on existing stream crossing culverts to store sediment (3 structures).

Priority 3 – Prepare existing sediment retention structure in Hart Canyon for sediment flush.

Summary of treatments: excavate sediment from existing sediment retention structure, stabilize inlet with rock and wire structure.

Priority 4 – install tributary and upland erosion control measures in North Ponil Creek, Seally, Bonita, Lookout and Hart Canyons.

Summary of treatments: treat dis-continuous gully with rock and erosion fabric drop structures (25 structures), treat active gully with rock and wire check dams (6 structures), construct small sediment retention structures (3 structures), re-build and replace log check dams damage by fire (6 structures), re-work existing rock and erosion fabric drop structures (6 structures).

I. **Monitoring Narrative:**

Monitor the seeding treatment success in providing vegetative ground cover protection to the numerous cultural resource sites within the fire area. This will be accomplished by repeat visits by Forest archelogical staff to determine the amount of cover provided by this treatment and any ongoing surface erosion and subsequent effect to cultural resources. It is proposed that 4 seasonal visits be made each year for 3 years. Monitoring methods will include photo points (repeat photography), comparisons of current site conditions to earlier written descriptions of the affected sites, and evaluation of seeding success with respect to protection of cultural resources. First year monitoring costs are included in this request.

Monitor the effectiveness of aerial seeding. Seasonal visits are proposed by Forest watershed staff and Ranger District personnel for 3 years after application to determine the germination and survival success of seeded grasses, their effectiveness in providing surface ground cover and site stability and recovery of watershed condition. First year monitoring costs are included in this request.

Monitor the condition and status of the sediment retention basins during the summer storm season. This will be accomplished by recurrent visits by District staff, as needed during the summer monsoon season, to determine the need to excavate captured sediment in order to re-establish basin storage capacity. These visits will also monitor the need to make any needed repairs to the structures themselves to ensure functionality as designed.

A monitoring plan for the Ponil Complex burned area is being developed. A copy of that plan and a revised 2500-8 requesting the FY 2003 monitoring funds will be forthcoming soon.

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

			NFS Lands				Other Lands			All
		Unit	# of	WFSU	Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	SULT $	$	units	$	Units	$	$
A. Land Treatments										
aerial seeding	acres	13.35	9000	$120,150			$0		$0	$120,150
Subtotal Land Treatments				$120,150			$0		$0	$120,150
B. Channel Treatments										
stream channel protec	miles	15,066	10	$150,660			$0		$0	$150,660
Subtotal Channel Treat.				$150,660						$150,660
C. Road and Trails										
road protected	miles	0	0	$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Road & Trails				$0			$0		$0	$0
D. Structures										
cultural sites protected	each	7,188	2	$14,376			$0		$0	$14,376
Subtotal Structures				$14,376			$0		$0	$14,376
E. BAER Evaluation	plan	41856	1	$41,856						$41,856
Admin. Support	each	1859	1	$1,859			$0		$0	$1,859
				$0			$0		$0	$0
Subtotal BAER evalutation				$43,715						$43,715
F. Monitoring				$0			$0		$0	$0
monitor treatments	plan	7000	0	$0						$0
G. Totals				**$328,901**			**$0**		**$0**	**$328,901**

NOTE: Total dollar expenditures outlined in the table above correspond to costs detailed in "USDA Forest Service, Fire Costs for Carson NF, Comprehensive Transaction Fire Register, Year to Date Through FM 2003 – 03 (closed)."

Total costs for BAER evaluation correspond to costs detailed in "Forest Service Transaction Register, Obligations, Period Ending 09 2002—June, 2002 (closed) for Job Code H39999. Reports for the Carson, Santa Fe, Gila, Lincoln and Regional Office were reviewed to capture costs incurred but not necessarily billed to the affected unit by the personnel who contributed to this task.

PART VII - APPROVALS

1. /s/ Martin D. Chavez — 01/31/03
   Forest Supervisor — Date

2 _____ _____
   Regional Forester — Date

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