



P. Dominant Soils:

Eutric Glossoboralfs, LSC 6, lo-sk, mixed (TEU 816)

Ustochrepts, frigid and Eutroboralfs, LSC 5, (TEU 192)

Typic Dystrochrepts and Typic Udorthents, LSC 6, and Rock Outcrop (TEU 823)

Q. Geologic Types: Sandstone, Shale and Limestone.

R. Miles of Stream Channels by Order or Class: 1st Order: 0.1 miles 2nd Order: 0.0 miles 4th Order: 0.0

miles (Rio Pueblo).

S. Transportation System:

Trails: 0.5 miles (Forest Trail 5)

Roads: 1 mile (NM State Hwy 518)

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 333 (low/unburned) 202 (moderate) 184 (high)

B. Water-Repellent Soil (acres): 335

C. Soil Erosion Hazard Rating (acres): 17 (low) 0 (moderate) 695 (high)

D. Erosion Potential: 11 tons/acre

E. Sediment Potential: 15 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3

B. Design Chance of Success, (percent): 65

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

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 1.82

The Osha fire burned area is situated within the following sub watersheds (HUC 6):
Osha Canyon – Rio Pueblo (HUC 130201010903), and
Rio Santa Barbara – Rio Pueblo (HUC 130201010906)

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 for the Osha fire is summarized as follows:

184 acres of high severity (25%),
202 acres of moderate severity (28%), and
633 acres of low severity and un-burned (47%).

Burn Severity mapping for the Osha burned area was accomplished using a BARC image acquired June 9, 2011 and validated by field recon and mapping on topographic maps. The final Burn Severity map accompanies this report.

Field survey of burn severity classes indicate the areas of high burn severity are located on moderately steep to very steep slopes above (north) of SH 518. Slopes within the high burn severity areas range from 35 to 75 percent. Soils within the high burn severity areas are variable with moderately deep soils with cobble and stone surfaces occurring along ridge lines and deeper, less rocky soils present on smooth mountain side slopes. Rock outcrop is also a minor component of the soils. Prior to the fire, these areas supported a mixed conifer forest type in the upper elevations and Ponderosa pine forest type and pinyon-juniper woodland type in the lower elevations on southerly aspects. Field survey of the areas of High and Moderate Burn Severity indicate a low to moderate degree of water repellency has developed in areas of High and Moderate Burn Severity.

Critical Values Identified

Critical Values identified (FSM 2523.1 Exhibit 01) during the BAER assesment are:

- 1) Human Life and Safety,
- 2) Property,
- 3) Natural Resources (water quality/use and soil productivity).

The Osha BAER team evaluated the risk to those critical values per FSM 23235.1 Exhibit 02.

The risk matrix (below), Exhibit 2 of Interim Directive No.: **2520-2010-1** was used to evaluate the Risk Level for each value at risk identified during Assessment:



Loss of long term site productivity:

There is a **High** risk (*probability >50% to <90% and magnitude = moderate*) of increased levels of surface soil erosion and sediment delivery within the high burn severity areas predicted to occur. Loss of vegetative cover

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

1. 

Work with local authorities (NM DOT, Picuris Pueblo, and Taos County Office of Emergency Management) to facilitate the installation of an Early Warning System near the burned area. This action would be coordinated with the NM DOT and Taos County Office of Emergency Management. This system would initiate additional warnings to the traveling public based on predicted rainfall intensity in or near the burned area (ie - National Weather Service Severe and Hazardous Warning Information network). This action would be considered a short-term measure to mitigate the high risk to life and safety while other BAER treatments (aerial seeding and mulching) take hold. Need for continuation of this warning system would be evaluated annually.

Request the local NM DOT Maintenance District monitor this highway segment during storm events and be prepared to implement short term highway closures if flooding and debris flows occur.

Submit a request for the Osha burned area be added to the National Weather Service Severe and Hazardous Warning Information network for a minimum of 2 years. Advise the residents of the Sipapu and surrounding areas and Penasco of the availability of this warning information and encourage them to acquire NOAA weather radios for their use and protection.

(Note: Shapefile of the burned area has been provided to the Albuquerque Office of the National Weather Service as of June 16, 2011 (per e-mail submission to Brian Guyer). It was also requested that NWS Albuquerque provide any additional information related to education of local population as to the risks related to burned areas and weather related impacts and other warning advisories.)

Issue a letter to the Taos County authorities (County Commission, Office of Emergency Management) and State of New Mexico authorities (NM State Police and NM DOT) signed by the Forest Supervisor providing the results of the BAER assessment and outlining values at risk determined to be at an increased risk of flooding or damage due to the Osha fire. This letter would include a table providing the list of locations that were assessed for increased potential of post-fire flows. This table would include watershed areas, acreage of low, moderate, and high intensity burn severity and the multiplication factor for use to calculate increased peak flows that may result due to the effects of the fire.

Land Treatments:

Aerial Seed and Mulch

Aerial seed and mulch (helicopter) approximately 165 acres of high burn severity areas at a target rate of 25 Pure Live Seed (PLS) per square foot (18 lbs/acre x 165 acres = 2,970 lbs PLS). Mulch the seeded areas with certified weed free straw at a rate of 1 ton per acre. Proposed weed free seed mix is slender wheat grass (25%), mountain brome (25%), and cereal barley (50%). This treatment is intended to reduce the threat to life and safety and risk of storm damage to downstream infrastructure (SH 518) by providing immediate ground cover to high burn severity areas, reduce the risk of sediment bulking of storm flows, protect existing water quality, and protect long term site productivity.

Invasive Species – Detect and Treat

The high burn severity (184 acres) areas would be surveyed for invasive species during the fall of 2011 and again prior to the anniversary date of the fire (June 1, 2011). If invasive species are located, appropriate treatment would occur to treat the infestation as they are discovered. Treatments may possibly include mechanical, cultural or herbicide treatments based on the most effective means for the particular species found. The needed treatment may require a supplemental BAER request for funding.

Channel Treatments:

None recommended.

Roads and Trail Treatments:

None recommended.

I. 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.)

Aerial seed and mulch application.

Effectiveness: Monitor seed and straw mulch treatment success 1 year post seeding by re-visiting the treated area and visually estimating the percentage of live vegetative cover that results. Identify areas of accelerated sheet and rill erosion which may need spot treatment. Photo points and GPS locations will be included with this monitoring.

Warning signs on SH 518.

Thru the monitoring of seed and straw mulch effectiveness, monitor the rate and degree of hydrologic recovery within the treated areas and communicate this recovery to NM DOT, Taos County Office of Emergency Management, and other local entities. Re-evaluate the continued need for storm patrol and warning signs on an annual basis.

References:

New Mexico Environment Department - Surface Water Quality Bureau.

2010 – 2012 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated Report, Appendix A – List of Assessed Surface Waters. www.nmenv.state.nm.us/swqb

USDA Forest Service, Terrestrial Ecosystem Survey of the Carson NF, 1993.

USDA, Natural Resources Conservation Service, National Engineering Handbook - Part 630 Hydrology, Chapter 9 Hydrologic Soil-Cover Complexes, July 2004.

Precipitation-Frequency Atlas of the United States NOAA Atlas 14, Volume 1, Version 4, G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley, NOAA, National Weather Service, Silver Spring, Maryland, 2006. Extracted: Sunday June 27 2010. <http://hdsc.nws.noaa.gov/cgi-bin/hdsc/buildout.perl?type=pf&units=us&series=pd&statename=NEW+MEXICO&stateabv=nm&study=s&season=All&intype=3&plat=31.652&plon=-106.816&liststation=0&slat=35.6625&slon=-105.494444&mlat=32.807&mlon=-102.431>

Rapid Post-Fire Hydrologic Watershed Assessment using the AGWA GIS-based Hydrologic Modeling Tool, D.C. Goodrich, H. Evan Canfield, I. Shea Burns, D.J. Semmens, S.N. Miller, M. Hernandez, L.R. Levick, D.P. Guertin, and W.G. Kepner. <http://www.epa.gov/esd/land-sci/agwa/pdf/pubs/Goodrich-ASCE-05-AGWA.pdf>


Wildcat5_newf.xls, Beta version, un-published.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim # 1

			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										
Aerial Seed (CWN helicopter) - includes application monitoring costs	acre	450	165	\$74,250	\$0		\$0		\$0	\$74,250
Seed	acre	25	165	\$4,125	\$0		\$0		\$0	\$4,125
Aerial Mulch (CWN helicopter) - includes application monitoring costs	acre	1200	165	\$198,000	\$0		\$0		\$0	\$198,000
Invasive species - detect and treat	acre	100	165	\$16,500						\$16,500
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$292,875	\$0		\$0		\$0	\$292,875
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treat				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
				\$0	\$0		\$0		\$0	\$0
					\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$0	\$0		\$0		\$0	\$0
D. Protection/Safety										
Warning Signs	each	200		\$0	\$0	6	\$1,200		\$0	\$1,200
Electronic Message Board	day	100		\$0	\$0	30	\$3,000		\$0	\$3,000
Sediment Disposal Area	each	3000	1	\$3,000						
Storm Patrol	each	500		\$0	\$0	20	\$10,000		\$0	\$10,000
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$3,000	\$0		\$14,200		\$0	\$14,200
E. BAER Evaluation										
	each	1	15000		\$15,000		\$0		\$0	\$15,000
Insert new items above this line!				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				---	\$15,000		\$0		\$0	\$15,000
F. Monitoring										
Seeding Effectiveness (Two GS-7)	acre	165	50	\$8,250	\$0		\$0		\$0	\$8,250
							\$0		\$0	\$0
Insert new items above this line!										
Subtotal Monitoring				\$8,250	\$0		\$0		\$0	\$8,250
G. Totals				\$304,125	\$15,000		\$14,200		\$0	\$330,325
Previously approved										
Total for this request				\$304,125						

PART VII - APPROVALS

1. 
/s/ Kendall Clark
Forest Supervisor (signature) June 17, 2011
Date
2. _____
Regional Forester (signature) _____
Date