



Uinta National Forest: PAM-12® as an Effective Post-Fire Treatment



Controlling erosion, re-establishing vegetation, and overcoming the negative effects of hydrophobic soils have long been a challenge following wildfire on forest lands. High severity wildfire destroys the natural protection of soil and leaves the soil watershed, vulnerable to large-scale erosion, flooding, debris flows and mudflows from subsequent storms. Therefore, preventing negative post-fire soil and watershed effects associated with catastrophic wildfires has been a challenge to Burn Area Emergency Rehabilitation (BAER) teams.



A three year study was completed by the United States Forest Service at Uinta National Forest near Provo, Utah, where the Red Bull Fire burned in July/August of 2004. The purpose of this study was to compare polyacrylamide soil treatment to the traditional cover method using agricultural straw. Of the 165 acres burned during the Red Bull Fire, 21 acres were experimentally treated with PAM-12®, PAM-12® and straw, and straw. A separate control plot was also used in the study to compare the performance of the treatments.

Treatment blocks were sized to allow for aerial application by a helicopter with a tethered seed hopper. The treatment blocks were placed adjacent to each other on west and west-southwest facing slopes. The PAM-12® treatment was located on 33% slopes, the PAM-12® and straw treatment was located on 25% slopes, the straw on 20% slopes and the control on 16% slopes. The PAM-12® application rate was 600 lb/acre, which would result in a polyacrylamide application rate of 7 lb/acre. ENCAP®'s patented technology allows for the highly controlled application rates and delivery of polyacrylamides as PAM-12®. The results of the study were evaluated on several key parameters including: soil hydrophobicity, soil movement and vegetative cover.

The results of this study showed that fire induced hydrophobic soils were improved by applying polyacrylamide at the rate of 7 lbs/acre either as PAM-12® or as PAM-12® and straw. It should be noted that this is a relatively low application rate for polyacrylamides. The first year vegetation responses were also greatest for the PAM-12® and the PAM-12® and straw treatments. The PAM-12® treatments also showed overall lower mean hillslope erosion, although the results were only significant relative to the control and the straw treatments. However, it should be noted that the PAM-12® applications were done on the most severe slopes, where erosion rates would be highest.

It is essential to understand the interactions between polyacrylamides and the soil when applying PAM-12® after wildfires, as PAM-12® is not a cure all for all soils or for all fire conditions. However, when

applied under appropriate conditions, PAM-12® is a very successful hilltop treatment when compared to agricultural straw mulch and may outperform other erosion control treatments. For a complete copy of the Uinta National Forest study, please contact ENCAP®, LLC at 877-405-5050.

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Project Description:	This project, which was conducted over a three year time period, compared polyacrylamide soil treatment to the traditional cover method using agricultural straw for post-fire treatment
Site Profile:	165 acres of “high burn severity” with 21 acres treated experimentally on slopes that ranged from 20-33%
Equipment Utilized:	Aerial seeding was completed with a helicopter and a seed-hopper with a capacity of one ton that was tethered to the helicopter
Products:	PAM-12® and PAM-12® with straw
Application Rate:	600 lb/acre of PAM-12®, with a resulting polyacrylamide application rate of 7 lb/acre
Project Results:	This project demonstrated that fire induced hydrophobic soils were improved by applying PAM-12® at 7 lb/acre either as PAM-12® or PAM-12® and straw

