

LEVI CYPHERS, LESLIE HOPKINSON and JOHN QUARANTA, Dept of Civil Engineering, West Virginia University, Morgantown, WV 26506. Exploring the use of short paper fiber as a soil amendment in coal refuse.

Water infiltration of coal refuse piles leads to an increase of acidity in groundwater and nearby streams and rivers. This study tested the effect of adding short paper fiber as a soil amendment to establish and maintain vegetative cover in coarse coal refuse. Two blends of short paper fiber and coarse coal refuse were tested for use as a topsoil mixture as well as a control sample containing only coal refuse. The ratios tested were 80% refuse with 20% short paper fiber (80/20 blend), 60% refuse with 40% paper fiber (60/40 blend), and 100% refuse with 0% paper fiber (control). All samples were tested using the same seeding mixture in identical growing conditions. The experiment lasted 16 weeks, mid-July – October 2016. Vegetation growth was measured weekly based on ground cover and stem height. Biomass measurements were collected in the final week of the study. Ground cover reached a maximum for samples containing paper fiber at 77.1% in the 80/20 blend. The maximum ground cover for any sample without paper fiber was 0.5%. Samples with short paper fiber had greater ground cover and biomass than the refuse samples. Results show that both blend ratios performed similarly with respect to the use as a growth medium. Therefore, the addition of short paper fiber shows potential to support vegetation establishment in coarse coal refuse.

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