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## Engineer: Land disturbance increases peak runoff

July '01 flood victims claim coal, timber companies responsible for damage

**By Audrey Stanton**

REGISTER-HERALD REPORTER

When land in a watershed is disturbed, there is an increase in the rate of peak stormwater runoff, a New York environmental engineer told jurors on the first day of testimony in mass litigation that has victims of the July 8, 2001, flood arguing against coal and timbering companies they say were responsible for much of the damage they suffered that day.

The overall case involves thousands of plaintiffs and some 400 defendants in six southern West Virginia watersheds. But the portion of the case being tried this week before Raleigh County Circuit Judge John Hutchison concerns 900 plaintiffs and seven defendants living in the hardest-hit of the watersheds, the Upper Guyandotte, which includes the sub-watersheds of Mullens and Oceana. Several defendants have been dismissed from the case.

Attorneys spent all of Tuesday presenting opening statements and informing jurors that their job will be to answer three questions: Did the land use increase peak flow, that is the rate at which any rainwater on those sites ran off those sites? Did an increase in peak flow cause a material increase in the flooding of the streams? And was the landowners' use of the land reasonable?

Wednesday, after Hutchison ruled on several motions, including one made Tuesday to declare a mistrial, which he denied, plaintiffs' witness Dr. Bruce A. Bell took the stand under direct examination by attorney Stuart Calwell.

Bell holds a Ph.D. in environmental engineering and a master's degree in civil engineering. His firm in New York specializes in designing systems that control runoff. He is not a forest hydrologist or ecologist, and he has no experience with regard to timbering or surface mining other than through the information he analyzed for this case.

Using details from different types of scientific models, an HEC-1 (Hydraulic Engineering Center) and a TR-55 (Technical Release), Bell explained to jurors how rain runs off hills on various types of land.

He cited information collected from the Coweeta Experimental Forest in North Carolina, a 5,400-acre outdoor laboratory for watershed management research. Bell said its terrain is similar to that in question regarding the Oceana and Mullens watersheds.

Research there indicates the primary thing that increases the flow of water is road disturbance, such as skid and logging roads, Bell said.

"Obviously, if that's true in one place, ... and it's consistent to what the models show in other places, then it should be

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applicable to Oceana and Mullens," he said.

Jurors viewed several charts depicting the amount of increase in peak runoff rates before and after certain types of land disturbance, including various types of logging and valley fills.

Bell said the research and measurements made at sites within the Mullens and Oceans watersheds indicate increases in peak flow rates in the presence of mining and timbering operations, although measurements will yield different results at different locations.

"All of the modeling shows consistently that this type of disturbance increases peak flow," he said.

Bell's testimony will continue today.

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