

To: WV Department of Environmental Protection. Date: October 12, 2012

From: Duane G. Nichols, Co-Chair, Monongahela Area Watersheds Compact.
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RE: Triennial Review of the West Virginia Water Quality Standards

A water quality standard of 500 ppm for total dissolved solids (TDS) is needed for all the streams of West Virginia. There are multiple reasons for this need.

- (a) The water used for daily living by our citizens should be free of offending dissolved solids, i.e. free of odors, free of laxative effects, free of unknown quantities of metal ions, and free of toxic and hazardous substances; and, since we cannot achieve full purity, an upper limit is a necessity.
- (b) The water in our streams should be limited in its dissolved solids content for household use, as in the washing of clothes; limited for use in steam irons where deposits accumulate quickly, limited in passing thru pipes, valves and fittings where scale accumulates rendering the functional parts ineffective.
- (c) The water in our streams should be limited in dissolved solids for applications in commercial, industrial and utility systems such as steam boilers, makeup water for chemical applications, quench water for direct temperature reduction, etc.
- (d) The water in our streams should mimic natural conditions in support of the living creatures in our waterways, fields and forests; hence a limit on TDS is needed.
- (e) The water in our streams is threatened by both active and legacy coal mining activities, a severe problem that can or will not be fully addressed until limits are put on the TDS levels in our streams state-wide.
- (f) The incredible impacts of Marcellus shale drilling and fracking on our State streams has already demonstrated issues and problems that have not been fully addressed; here too, a state-wide TDS limit will bring a consistent constraint for this industry and a basis on which to manage the impacts involved.
- (g) Golden algae and other possible invaders can be significantly limited if not fully prevented if a rational limit on TDS is instituted through out the State of West Virginia.

Specific evidence that demonstrates the problems involved and the need for a TDS limit have been presented and described by Rose Reilly and others. Her work and data are shown in the documents below:

1. Rose Reilly of the US Army Corp described extensive water data showing that a number of streams in West Virginia and Pennsylvania have high levels of total dissolved solids (TDS) and should be considered problematic as more and more drilling and fracking are performed. <http://www.frackcheckwv.net/2011/10/26/u-m-r-a-hosts-annual-meeting-in-west-virginia-for-us-army-corps-of-engineers/>
2. Rose Reilly, 2011 USACE Infrastructure Systems Conference, Atlanta, Georgia, June 13-17, 2011, “**Upper Ohio River Basin Water Quality Trends.**” http://www.usace-isc.org/presentation/HHC%20-%20Environmental%20&%20Water%20Quality/Upper%20Ohio%20River%20Basin%20Water%20Quality%20Trends_Reilly_Rose.pdf
3. Rose Reilly, State of the Monongahela River Research Symposium, Carnegie Mellon University, November 3, 2011, “River Watershed Water Quality Trends.” <http://www.ices.cmu.edu/waterquest/forum/archive/2011/slides/Mon%20Riv%20WQ%20trends%203%20Nov%202011%20Reilly.pdf>