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WETT PRIMER

Hello. I'm Frank Doherty, Founder and President of Aquatox Research.

The US Environmental Protection Agency was formed in 1969. Many of the major pieces of environmental legislation that are in effect today were first enacted during the 1970s. The Clean Water Act was one of those pieces of legislation. It prohibited the discharge of toxic wastewater to surfaces waters in the United States. There were several tens of thousands of registered chemicals at that time with very few analytical methods for their measurement. So there was no way the requirements of the law could be satisfied through analytic means. The strategy that was developed to satisfy the requirements of the Clean Water Act was the development of WETT testing. The concept basically entails allowing aquatic organisms to tell us what's acceptable or not. This approach has multiple advantages. The organisms will respond to biologically available concentrations of chemicals and not the total concentrations that might be determined through analytical methods. There is no need to identify the components of a non-toxic waste stream. And the biological response will reflect any chemical interactions between components of a complex waste stream whether they be antagonistic or synergistic.

The first step in developing the WETT testing approach was to identify the appropriate organisms and test designs to protect a waterway. The initial research goal was to identify the one most sensitive species that would then be protective of all the other species in a system. However it quickly became apparent that not all species were equally sensitive to all chemicals. It was also equally apparent that it would not be appropriate to use a coldwater fish species to protect the warmer waters of southern states or vice versa. And there needed to be freshwater species for inland waters and saltwater species for tidally influenced waters ultimately discharging to marine waters (such as the lower Hudson River). The ultimate approach was for the development of regionally important combinations of species to form what is known as test batteries. Test batteries are combinations of species from different levels of biological organization that have varying sensitivities to the same toxicants. While there are a variety of other criteria that went into the selection of test species, New York State adopted the fathead minnow and the invertebrate Ceriodaphnia dubia for freshwater testing activities. Please join me in the follow on video where I discuss the test designs and endpoints for the freshwater tests included in NY discharge permits.

Thank you for your time. I look forward to discussing any questions you may have about our services.