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**PLANNING FOR MANAGED YIELD FOR GROUNDWATER SUPPLIES RATHER THAN
SAFE YIELD AS WATER RESOURCES ARE IMPACTED BY CLIMATE CHANGE**

Sarah Meyland*

ABSTRACT: Groundwater supplies will likely become the water source of last resort as climate change alters patterns of precipitation and water availability. Historically, water utilities and water managers have used "safe yield" as a guide for sustainable water extraction. While this approach accounts for human demands on the resource, it ignores the larger processes that drive an entire aquifer system. It is no longer acceptable to equate safe yield to a comparison of recharge vs. pumpage. More recently, the approach of "sustainable yield" takes a broader view that includes those processes which safe yield ignored such as ecological systems, groundwater-surface water interactions and the larger hydrologic dynamics of an aquifer when defining the portion of water humans can extract. However, this view may still define a specific volume of water that becomes set into policy and practice but does not respond to conditions of uncertainty or change.

This paper examines the shift from flawed concepts such as "safe yield" and proposes a more useful approach of "managed yield" for aquifer systems. This approach will be applied to cases where traditional safe yield has failed to guide prudent management of a local water supply. It will discuss how water management strategies should adjust to the uncertainties that lay ahead with climate change, population growth and community planning. This new approach to managed withdrawals incorporates safety factors when planning for the uncertainties of the future.

* Director: Center for Water Resources Management, New York Institute of Technology, School of Engineering & Computing Sciences NYIT, Old Westbury, NY 11568-8000 USA, Phone: 516-686-7765, Fax: 516-686-7919, Email: smeyland@nyit.edu