Data Centers and Groundwater Resources: National Ground Water Association Position Statement



Walter Wright, Jr.
wwright@mwlaw.com
(501) 688.8839

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The National Ground Water Association ("NGWA") issued a position statement titled:

Data Centers and Groundwater Resources ("Statement").

The NGWA describes itself as a:

… not-for-profit professional society and trade association for the global groundwater industry.

The association's members are stated to include worldwide leaders in public/private sector groundwater scientists, engineers, water well system professionals, manufacturers, and suppliers of groundwater-related products and services.

NGWA stated that it launched a Data Center Task Force consisting of NGWA members to focus on developing guidance for policymakers, utilities, communities, and data center developers. The Task Force addressed ways to protect long-term water resources by focusing on:

- Groundwater availability.
- Transparency in water use.
- Best practices for siting and operating data centers.

The stated concern is that the proliferation of data centers in groundwater-reliant and rural communities makes it important that water resource professionals and communities are incorporated early in the conversation.

The NGWA Statement notes by way of introduction:

… data center development must protect groundwater quality and quantity, be transparent in water and energy use, and incorporate best available technologies to minimize or eliminate consumptive water use while supporting reliable and sustainable infrastructure growth.

The Statement acknowledges:

- Data centers are a fundamental part of modern life and national security.
- Artificial intelligence and cloud computing are expected to advance and expand.
- Data centers have significant power demands, and many rely on water for cooling, often using large quantities of groundwater.
- As power and groundwater are finite, data center development must consider infrastructure needs and best available science and engineering practices to limit the consumptive use of groundwater and impacts to the environment.

Groundwater protection principles outlined in the Statement include:

- Support data center development that embraces the best available technologies to improve efficiency and minimize or eliminate consumptive groundwater use.
- Development should include monitoring of water withdrawals and other potential impacts to groundwater and surface water quality and quantity.
- Respect the existing water users in the region and maintaining or improving existing environmental conditions.
- Developments will be site-specific with each location requiring study to evaluate the resources available and the potential capacity of the environment to assimilate the demands placed on it.
- Proper research and design practices must be engaged to ensure resiliency through the cumulative effects of groundwater withdrawal and other potential impacts.
- Potential effects of drought and a changing climate on the assimilation capacity of the environment should be addressed.

The Statement addresses transparency in water and energy use and contends that data center operators should clearly disclose:

- Sources of water used (groundwater, surface water, reclaimed water).
- Annual and peak water withdrawal and discharge volumes.
- Consumptive versus non-consumptive use.
- Relationship between cooling systems, energy demand, and water use.
- Transparency should occur during planning, permitting, and ongoing operation.

Few regulations are stated to exist to manage new data center impacts on sometimes limited water resources. It recommends that data centers integrate a data-center-specific hydrogeologic assessment into planning efforts that provides at a minimum:

- Planned data center water uses.
- Information on the proposed source and its resiliency.
- Information on the proposed receiving water body or aquifer, its quality, and the volume and rate of discharge.
- Identify and evaluate potential impacts to nearby users and resources and appropriate monitoring procedures.

The Statement also identifies what it describes as several geothermal heat exchange systems that can either reduce or eliminate water use for conditioning data centers.

A copy of the Statement can be found here.