Richard Thoms
Dickerson, MD

Subject: written testimony regarding ZTA 26–01

my name is Richard Thoms and I am a resident of Dickerson located approximately 4 miles from a site being considered for a data center.
I have lived there for 52 years. Our household cattle and sheep, peaches and apples are all 100% dependent on the Piedmont sole source aquifer for drinking water.
My background is that I have a degree in mechanical engineering and worked for 36 years in industry providing design and implementation of industrial cooling systems. During the last 10 years prior to my retirement, I worked with a division of General Electric known as the Engineering Design Group as their exclusive supplier of chilled water cooling systems, pumping systems, fuel oil distribution systems. Temperature control systems and sound attenuation equipment for hyper scale data centers. This included work for PSI net, Teleglobe, General Electric, Disney, plus some medical facilities. These Data Centers were in locations in Florida, Texas, Georgia, Virginia, North Carolina, and New York State.

I am concerned with the current rush to site data centers, and capture their potential tax revenue and the political support of their developers. I have heard one representative. tell us that they oppose a moratorium because it would be "unfair to the developer". Another representative has told us that the ZTA cannot address drinking water or power consumption, but not to worry, the state will address that issue later. We've seen what the governor thinks of an environmental regulation with his recent efforts to override the requirement for environmental review of such facilities . Future MDE review is not sufficient.

In my opinion, the ZTA is an important first step in regulating what is currently a free-for-all development market that the regulatory agencies have overlooked. Politicians seem to have become enthralled by the dream of potential tax revenue from these projects. However, a moratorium is needed to sort out the competing priorities of short term profits, sustainable growth of the electric grid, public health, quality of life and preservation of essential resources like drinking water. These issues cannot be postponed to a future review process by MDE. They need to be addressed before the site use has been approved.

The risks that we faced from the proposed Dickerson facility are numerous and should be addressed in the ZTA and it could be done using the same methodology in language that is included in the ZTA regarding noise level considerations – see paragraph 2.d.i-iii.

The analysis of the noise level stipulated in the ZTA and planning board recommendations would require detailed information about the primary power system and cooling system designs in order to obtain a meaningful result. The same requirements must apply to the backup systems operation as well if the analysis is to be meaningful. Note that only a 15 minute duration sound event is required for the noise ordinance to apply.

In the case of the Dickerson site, neither the original applicant – terra systems – or the subsequent applicant – atmosphere – have provided any specific data which could be verified or used in such an analysis.

Based on the general information on the atmosphere website, it appears that ground level diesel generators would be provided with a sound wall to deflect noise vertically and air cooled chillers mounted on the roof would be provided for a cooling system back up. However, based on statements from terra systems, the POTOMAC River water would be the primary cooling source for the server racks. Here are my concerns that should be addressed before data center sighting is approved (not after the fact by the state).

A. In the event that river water is used for primary cooling:
   1. What river water temperatures are necessary to accomplish the server rack cooling and will they be available at minimum river flow conditions such as a normal September or a summertime drought. When global warming is considered and upstream data centers in Adamstown are at full build out, what will the river temperature be during minimum flow conditions?
   2. Are the proposed river temperatures acceptable for the sustenance of downstream ecologies and the drinking water supplies?
   3. Will the warmer river temperatures result in increased river evaporation thus diminishing the available supply of drinking water
   4. Will more reservoir water need to be released to the river to sustain minimum flow requirements because of this industrial operation?
   5. Where will the sludge from the river water filtration process be disposed of?

B. The chilled water loop for the server racks will actually be two redundant piping loops to ensure the N +1 reliability necessary. This chilled water loop is typically a glycol solution that uses Ethylene glycol antifreeze (the poisonous kind) instead of the safer propylene glycol due to Ethylene glycol's superior heat transfer efficiency. The result of this design is that you have doubled the amount of cooling piping and pumps and just doubled the amount of glycol in the system compared to what would be needed in a non-data center application. To put this in perspective, each data center would require multiple tanker trucks of this poisonous glycol solution plus rusted inhibitors in to fill the pipes of the closed loop chilled water system. In Dickerson, all of this solution will be located above the Piedmont sole source, aquifer, and upstream of the drinking water intake for WSSC serving the Maryland,DC and Virginia areas. Given the recent WSSC sewer line break, such a disaster should be easy to imagine.

C. Should the river water filtration/heat exchanger system fail for any reason, a backup cooling system will be required. Cooling system backup designs that use air cooled chillers would require a significant (approx 50%) more electricity backup than systems which use water cooled chillers.
   1. Will this excessive number of diesel generators be permitted ?
   2. Should the developer request approval of a backup design using water cooled chillers, and thus fewer backup generators, will this be allowed? Where will the water for this backup system come from ? WSSC ? The Aquifer?

The ZTA should stipulate that an engineering analysis be provided with the application to prove that neither the primary or the backup cooling system will consume (or evaporate) or contaminate any water from the aquifer or regional drinking water supply.
This is far more important than the acoustical analysis because engineered solutions to the noise problems are readily available, but the drinking water problems could well be irreversible.

Lastly, the ZTA needs to define the enforcement provisions should the data center fail to comply with the approved limits or design features.

For all these reasons, I believe a moratorium is essential to grapple the technical issues and to ensure protection of our limited natural resource resources, as well as to develop a coordinated, workable and effective public policy.

“Atmosphere” - who has yet to build their first data center - is NOT the only game in town for Dickerson

It has been suggested that MoCo must proceed with approval of the Data Center application before regulations are developed or else Atmosphere will pull out of MoCo and the county will lose all that tax revenue they were hoping for.

This is simply nonsense.

Dickerson, given its size and industrial zoning and EXISTING FIBER OPTIC CONNECTION VIA QLOOP will remain an attractive location for a data center should this inexperienced applicant (“Atmosphere”) withdraw. What might happen, if Atmosphere withdraws and the county enacts reasonable regulatory requirements for this site, is that we would end out with a more experienced and reliable data center operation there under safer and less risky conditions.

As for the threat of lawsuits, consider the suits that national and local environmental groups might bring, and the LIABILITY of the county should something go wrong under the stewardship of this previously unknown Data Center operator. Certainly, Atmosphere does not have the assets to withstand such a liability claim.

If the atmosphere application is allowed to proceed, perhaps a BOND sufficient to cover all liability in the event of an environmental catastrophe should be required of the operator. A “hold harmless” agreement should also be required.

Please add this message to the hearing record.

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