SUPPLEMENT TO WRITTEN TESTIMONY

OF THE WESTERN KANSAS GROUNDWATER MANAGEMENT DISTRICT #1:

ANSWERS TO QUESTIONS PRESENTED BY THE CHIEF ENGINEER AT THE SECOND LEMA HEARING

To Hearing Officer Earl D. Lewis, Jr., Division of Water Resources,

Kansas Department of Agriculture.

Submitted by: Kyle Spencer, Manager

Question #1: For the sufficiency question, you mention stabilizing the aquifer. What do the projection show—how long will the life of the aquifer be extended?

As is noted in our written testimony, KGS' work indicates that a 20.2% reduction in aquifer withdrawals should stabilize the aquifer for the coming decade or two. The LEMA plan calls for a general 25% reduction in irrigation withdrawals with exceptions noted in our Written Testimony, and that irrigation withdrawals account for 97% of all withdrawals from the High Plains Aquifer in the area. Further, as our Written Testimony demonstrates, actual savings from the Plan's implementation should achieve a reduction in irrigation withdrawals of at least 14.7%. Thus, if the Proposed LEMA plan is successful in its goal, much of what is required to stabilize the High Plains Aquifer will be achieved as long as the LEMA exists.

Since the November 20, 2020 hearing, KGS has provided the District with the following information in response to the Hearing Officer's question:

> "Dr. Jim Butler from the KGS recently published a paper that uses the water-balance method to project aquifer lifetimes in the SD6 LEMA by taking into account various pumping reductions and changes to the aquifer's net inflows that are bound to occur has the impact of those pumping reductions propagate through the system. The underling water-balance method applied in the paper is the very same procedure we used to compare water-level changes and water use from 2009 to 2015 for the Wichita County LEMA proposal."
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> The most subjective part of trying to answer the Wichita County LEMA lifetime question is defining what is that bottom threshold at which irrigation usage is no longer practical (e.g., the end of its lifetime). Since most of the county's saturated thickness falls roughly between 10 and 30 ft. (averages 21 ft.), one might argue we

> are essentially there. However, given that we are seeing more low-yielding wells being chained together, longer pumping seasons, and the thought that if people adopted the latest conservation technologies and practices, one might be able to still operate with a minimum of 15 ft. of saturated thickness.
>
> Using this number, [Dr. Jim Butler] applied the computed net inflows and average pumping conditions established in the Wichita County 2009 to 2015 analysis against the average 2018 to 2020 saturated thickness to determine how many years until the minimum threshold is met.
>
> If the average 2009 to 2015 pumping conditions in Wichita County continues as is, the aquifer is projected to get the 15 ft-threshold within 7 years. Again, this is an average for the entire county/GMD1 area- some areas will be more, some less, while some areas are there already. Reducing pumping 14.7% and assuming the net inflows remain constant, the time to reach the 15-ft. threshold is extended to 16 years. Reducing pumping 14.7% and assuming after 10 years the net inflows will begin to decrease at a rate of 1% per year, the timeline is 15 years.
>
> So the answer is... **the proposed Wichita County LEMA will at least double the lifetime of the aquifer."**

It is worth noting that, while stabilizing the Aquifer is GMD 1's ideal result, stabilization is not required under the law. K.S.A. 82a.1041 requires only that a LEMA plan is sufficient to address any issues recognized by the Chief Engineer. This Proposed LEMA certainly does that: it directly addresses the excessive rate of decline in the High Plains Aquifer by reducing withdrawals from the most significant users of that Aquifer.

In summary, while the Proposed LEMA might not fully stabilize the Aquifer, it will still be successful in significantly addressing the excessive Aquifer declines.

Question #2: Do you have any plans to evaluate the economic impact and implementation of the LEMA, should it go forward?

Regarding economic impact review. GMD 1 does not have a specific plan to employ any agency for an economic impact survey or review. However, there are two alternative ways GMD 1 plans to review the economic impact of the Proposed LEMA: a) through its LEMA Review Board, and b) informally and through potential researchers.

First, the LEMA Plan establishes a Review Board to annually review the status of the Proposed LEMA. That Review Board is discussed more below.

Second, GMD 1 will review the economic impact informally, and through potential researchers. GMD 1 will be open to potential researchers, and review data from other LEMAs as available. As in the Sheridan 6 LEMA, should individuals or agencies wish to do research on the effectiveness of the Proposed LEMA—academic or otherwise—GMD 1 will assist those researchers as much as possible. GMD 1 will monitor reports regarding the effectiveness of other LEMAs, just as it has done in developing this Proposed LEMA. It is worth noting that, as noted in our Written Testimony, economic impact reports from other LEMAs show that the economic impact on those LEMAs is statistically insignificant, both on crop output and on property values.

Regarding implementation review. Section IX of the LEMA Plan sets forth the Review Board implemented under the Proposed LEMA. This Review Board shall annually review the effectiveness of the Proposed LEMA in achieving its goal, and address any unforeseen implementation issues. The results of this review will be presented at GMD 1's Annual Meeting.

Additionally, in the fourth year of the Proposed LEMA Period, the Review Board shall make a comprehensive report to the DWR of the success or failures of the Proposed LEMA, with an emphasis on all economic data available. This report will be presented to all stakeholders under the Proposed LEMA, and will allow them the opportunity to submit testimonials and data that will also be sent to the DWR. This report, including all of its data and testimonials, should allow GMD 1 and the DWR reliable information to adjust any future LEMAs to ensure the longevity of the High Plains Aquifer.

Question #3: Regarding the selection of the date by which the appeal must be filed.

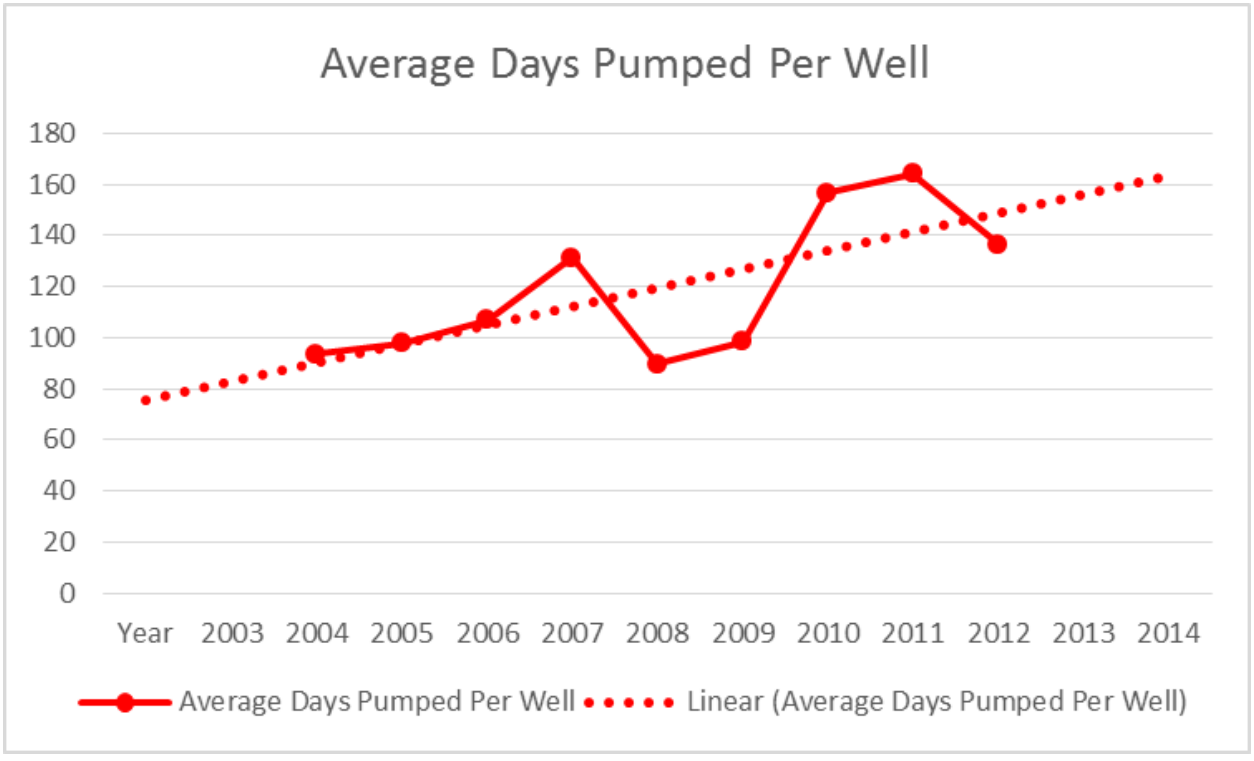
This date was carefully selected by GMD 1 after significant and numerous discussions and input from the stakeholders in Wichita County. The March 1, 2022 date gives those stakeholders considerable time to review, prepare, and present any appeals to the Board they deem appropriate and matches the time period allowed for appeals for GMD 4's most recent LEMA. Additionally, this appeal-deadline date has been thoroughly discussed and published to all users and residents under the Proposed LEMA, placing any potential land purchasers on notice of the possible regulations and restrictions on agricultural land use.

Assuming the Proposed LEMA begins on January 1, 2021, this deadline provides stakeholders nearly 14 months to appeal. Considering the Proposed LEMA's length is 60 months, this appeal deadline comprises over 23% of the entire Proposed LEMA's run, which is more than adequate.

Question #4: The reasoning behind the selection of the 150-day limit multiplied by the pumping rate and the sufficiency for that for the appeals allocation.

This, too, was subject to extensive discussion and debate by GMD 1 and the Proposed LEMA's stakeholders. After initial discussions, the Board proposed 135 days in their draft plan made available to the public prior to and at the first public meeting held on July 30th, 2018. The initial proposal of 135 days was based on data compiled by DWR and GMD1 at the request of the Wichita County Water Conservation Area development committee for the development of their WCA. The data compiled included total irrigation use per year, active wells pumped per year, and historical pump rate tests to determine average days of use each year for active wells and declining pump rates. Due to the declining well capacities the average days of use per year has shown a steady increase, reflected in the graph below produced from the data. From this data the WCA committee selected a pump test based on 135 days as representative normal irrigation period for enrollees without a complete water use history during their historical use period of 2009-2015.

In developing the LEMA plan the GMD1 Board reviewed this data and agreed that 135 days would be sufficient for the LEMA appeals process and would coincide with the WCA plan. However, after public input, the Board with consideration to this input and the fact that a LEMA is mandatory agreed to change the number of days from 135 to 150. This increase was widely accepted by the public.



The above graph was created by using available and reliable data from wells under the Proposed LEMA, and represents that the 150-day limit is within the expected norms for the users under the Proposed LEMA. This data was used in coming to the 150-day limit, and was presented to the Board on April 17, 2018.

After public input, and review of the data, the Board increased the number of days to the 150 days in the plan.

Respectfully Submitted,

/s/ Kyle Spencer_____
Kyle Spencer
Manager, GMD #1