

Darrell Wood - Edwards (Pres.)
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Jerry Cullop - Rice (Sec.)
Justin Gatz - Reno
Kent Lamb - Stafford
Phil Martin - Barton
Kerry Froetschner - Pawnee
Tom Taylor - At-Large



Orrin Feril, Manager
125 South Main Street
Stafford, Kansas 67578
ph: (620) 234-5352
fx: (620) 234-5718
gmd5@gmd5.org
www.gmd5.org

August 28, 2018

Brent Turney
Division of Water Resources
Kansas Department of Agriculture
1320 Research Park Drive
Manhattan, KS 66502

RE: Water Right File Nos. 21729-D1, 21729-D2, 21730, 21731,
21732-D1, 21732-D2, 21733, 21734, 21841, 21842, 22325,
22326, 22327, 22329, 22330, 22331, 22332, 22333,
22334, 22335, 22338, 22339, 22340, 22341, 22342,
22343, 22345, 22346, 27760, 29816, 30083, & 30084
Applications to Change the Point of Diversion,
Change the Place of Use, &
Change the Use Made of Water

Dear Mr. Turney,

The Big Bend Groundwater Management District #5 has reviewed the above referenced applications to change the point of diversion, place of use, and use made of water. The applications appear to be consistent with 5-25-20(b). Considering the complexity of these applications, the District board reviewed the supporting documentation and change applications to provide the District's recommendation on the change applications.

In the July board meeting, the District board reviewed the June 21 presentations by the City of Hays, Foulston Siefkin, LLC, Burns & McDonnell ("BMcD"), and by Keller-Bliesner Engineering, LLC ("KB"). The District board did not take action in July to allow for more time for Balleau Groundwater to analyze the technical data and reports.

The technical review by Balleau Groundwater Inc. ("BGW") as well as preliminary District staff recommendations were presented to the Board of Directors at the August 9, 2018 regular board meeting. Following thorough discussion, the board tabled the discussion until August 27, 2018 for further consideration.

In the August 27, 2018 board meeting, further technical review by BGW was presented to the board for consideration. The District staff has put together its findings based on the information presented to the District to this point.

Staff Findings

1. The application of K.A.R. 5-5-8 calculations conducted by KDA-DWR is accurate to

determine the regulatory consumptive use for these change applications. KDA–DWR staff invested substantial effort to be as accurate as possible and follow existing processes for the determination of 6756.80 AF cumulative.

2. As noted previously, BGW identified technical issues with the BMcD analysis. These issues are 1) Stream stage simulations, 2) Streamflow routing, and 3) Drought pumping stress factors. These issues were brought to the attention of BGW and KDA–DWR but not corrected. From a technical standpoint, it is not clear if the corrected analyses will favor the applicant until the scenarios are simulated.
3. As noted in the August 21, 2018 report, KB identified technical issues with the BMcD analysis. The independent assessment of these technical issues by BGW agreed that these issues should be addressed by the BMcD. From a technical standpoint, it is not clear if the corrected analyses will favor the applicant until the scenarios are simulated.
4. The consumptive use analysis conducted by KB is an example of a site-specific study to determine the net consumptive use for the applications. BGW discussed the study with Andy Keller and believes the approach taken by KB is interesting. However, the application of K.A.R. 5-5-9 (c) does not require the Chief Engineer to conduct such an analysis. Accordingly, it doesn't prevent the Chief Engineer from conducting this type of analysis either.
5. Based on a review of the BMcD modeling and discussions with BGW, the limitation on the quantity of water that can be diverted from the combined R9 Ranch municipal wells during any 10-year period of 48,000 AF does result in a decline to the local aquifer. This special limitation is not implemented routinely in other change applications. According to Figure 4 in the BMcD report, dated February 13, 2018, 4,800 AFY is near the equilibrium point for stable water level change following these changes. However, based on independent review by BGW, the realistic equilibrium is closer to 4,000 AFY to have no net effect to the local area. This is shown by comparing Scenario 3 (Long-Term Baseline Irrigation) and Scenario 4 (Long-Term Maximum Average Municipal).
6. Neither the District office nor legal representation was consulted during the drafting and negotiations leading to the draft master order.
7. According to clause 157 in the draft master order, the Ten-Year limitation can be increased based on future modeling that shows a new estimate of yield from the aquifer. However, it does not allow for the lowering of the limitation based on future modeling.
8. According to clause 157 in the draft master order, the Ten-Year limitation can be removed if either the Upper Arkansas River basin is opened to new appropriations or the Arkansas River IGUCA is substantially lifted or reduced without replacement by another conservation mechanism. Both items are largely outside of the District's boundaries and not subject to the District's management program.
9. According to clause 158 in the draft master order, upon notification of any of the items in clause 157, pertaining to the Ten-Year limitation, the Chief Engineer may hold a hearing or hearings on those specific items.

10. The Monitoring Plan (Exhibit 34) does an adequate job of monitoring the water quantity effect of the changes over time. It appears that the fifteen observation wells are evenly distributed throughout the area. However, there is a complete omission of monitoring water quality. The quality of the alluvial water is poor and should be monitored to see the trend over time.

Staff Recommendations

1. The Ten-Year Rolling Aggregate Limitation should be adjusted to 40,000 AF to come into alignment with the R9 Ranch's historic consumptive use of 4,000 AFY (Scenario 3).
2. The technical issues identified previously regarding the stream stage simulations, streamflow routing, and drought pumping stress factors should be corrected and made a matter of record by BMcD. Further clarification can be provided by the District through discussions with BGW.
3. The technical issues identified by KB in the August 21, 2018 report should be corrected and made a matter of record by BMcD.
4. Clause 157 (a) of the draft master order should be revised to allow for a revision to the Ten-Year Limitation based on up-to-date modeling conducted with peer review of KDA-DWR and District staffs. Such a revision should be allowed to be greater or lesser than the amount initially established in the draft master order.
5. Clause 157 (b) of the draft master order should be revised to include the current management program adopted by the District and approved by the Chief Engineer.
6. Clause 158 of the draft master order should be revised to state that the Chief Engineer shall hold a hearing or hearings on items in clause 157.
7. The monitoring plan should be modified to include water quality monitoring as determined by the District board per K.A.R. 5-25-7.

On August 27, 2018, the District board voted to accept the staff findings and recommendations as presented and to submit them to the Chief Engineer for adoption in the approval of the change applications.

The applications to change are subject to the District's well equipment regulation K.A.R. 5-25-5 for required flow meters.

Please feel free to give me a call if you have any questions.

Sincerely,

Orrin Feril
Manager