

**STATE OF KANSAS
BEFORE THE DIVISION OF WATER RESOURCES
KANSAS DEPARTMENT OF AGRICULTURE**

**In the Matter of the City of Wichita's)
Phase II Aquifer Storage and Recovery Project) Case No. 18 WATER 14014
In Harvey and Sedgwick Counties, Kansas.)
_____)**

Pursuant to K.S.A. 82a-1901 and K.A.R. 5-14-3a.

DWR's PRE-HEARING BRIEF AND WRITTEN TESTIMONY

For its pre-hearing brief and written testimony regarding the formal-phase hearing of this matter, the Kansas Department of Agriculture, Division of Water Resources (hereinafter "DWR"), states as follows:

I. CATALYST FOR WICHITA'S PROPOSAL

The proposal at issue in this matter, Wichita's *ASR Permit Modification Proposal: Revised Minimum Index Levels & Aquifer Maintenance Credits*, dated March 12, 2018 (the "Proposal"), apparently originated because of the 2011–12 drought.

In 2011 Kansas was in a severe drought. DWR was contacted by the SW Kansas Irrigation Association because their member irrigators were in a real bind: the irrigators engaged in double-cropping practices, and the drought was requiring more water on wheat, their first crop of the year. Accordingly, they were on track to not have enough authorized water left to finish corn, their second crop of the year. Their corn, moreover, was already sold on guaranteed contracts.

DWR helped alleviate the irrigators' drought problem by authorizing drought term permits. The drought term permit provided a two-year quantity of water in 2011 by borrowing from a water right's authorized quantity for 2012. DWR did not want the water already diverted for corn to be wasted because of an insufficient authorized amount of remaining water, which would have

resulted in a reduced crop yield. The drought extended into 2012 and so it became apparent that the two-year drought term permits issued in 2011 would not provide enough authorized water for both the 2011 and 2012 calendar years. Accordingly, legislation was enacted to allow the drought term permits to be enrolled into multiyear (i.e., five-year) flex accounts with any 2011 overpumping forgiven.

The intense irrigation and other drought-related water uses in 2011–12 created an unintended consequence to the City of Wichita. During this drought period the water level in Wichita’s Equus Beds Wellfield (the “Wellfield”) dropped to near the minimum index level that previously had been set as a result of DWR’s approving applications related to Wichita’s ASR project. That approval had allowed Wichita to withdraw certain accumulated recharge credits, but only if the water level in the Wellfield was above the established minimum index level. Because the drought caused the water level to approach the minimum index level, Wichita was concerned about the prospect of being prevented from diverting any recharge credits they had accumulated. It was this unintended consequence of the drought that started Wichita’s discussions about changing the goal of its entire ASR project. DWR, therefore, began working with Wichita as they desired to repurpose their ASR project from a supplemental water-supply source to a long-term drought-protection project.

II. WICHITA’S CURRENT ASR PROJECT

Wichita’s two major sources of water are the Equus Beds Aquifer (the “Aquifer”) and Cheney Reservoir. Prior to the drought of 2011–12, Wichita obtained approximately half of its water from each source.

After water levels in both the Aquifer and Cheney Reservoir dropped during the 2011–2012 drought, Wichita decided to start using Cheney Reservoir more aggressively to avoid

evaporation loss. Wichita now diverts a higher percentage of their public water supply from Cheney Reservoir and only obtains about 20% of their water supply from the Aquifer. As a result of such change in Wichita's water management, the Aquifer has recovered to near pre-development conditions. This is better for everyone but hampers Wichita's ability to continue to accumulate recharge credits under current rules.

Under the current provisions of Wichita's ASR project that DWR approved, when water flows in the Little Arkansas River are high enough and there is room in the portion of the Aquifer designated as the "Basin Storage Area" (the "BSA"), Wichita may divert surface water from the Little Arkansas River, treat it through Wichita's ASR-project water-treatment facility, and then inject the treated water into the BSA for Wichita's future use. Such injected, treated water is different water than what would naturally be found in the Aquifer. The BSA is basically treated as an underground reservoir to store this treated water. Losses from this underground reservoir are in the form of leakage out of the BSA, compared to evaporation loss that occurs in above-ground reservoirs such as Cheney Reservoir. The BSA can be considered as the "box" in which Wichita can operate its ASR project and store water underground, for future use. That "box" equals 120,000 acre-feet of space in the Aquifer, as previously determined by the USGS model.

III. WICHITA'S PROPOSAL

In re-purposing the ASR project via the Proposal, DWR understands that Wichita seeks to: (1) manage the project so that there is enough water in the Aquifer both for Wichita and for the wellfield neighbors during and immediately after a drought, and (2) keep the Aquifer as full as possible, for as long as possible.

Wichita currently owns water rights in the Aquifer that are authorized to withdraw approximately 40,000 acre-feet of water annually. Wichita is planning for an 8-year, 1% drought

when Cheney Reservoir will eventually be depleted and Wichita will need to withdraw about 60,000 acre-feet of water from the Aquifer in 1 or 2 years during an eight year period of a 1% chance drought. Wichita would pump their 40,000 acre-feet of water rights first and then withdraw from their accumulated recharge credits, as needed. The recharge credits do not renew annually but go away either when they are pumped or when they seep out of the BSA.

The modeling provided by Wichita shows that in the worst case, at the end of such an 8-year, 1% drought, the Aquifer would remain about 80% full. That is with all current pumping, including domestic, municipal, irrigation, and the other beneficial uses operating in the Wellfield. The modeling also shows in the same drought that the maximum quantity that Wichita would need from the Wellfield is 59,907 acre-feet of water. This is a combination of 40,000 acre-feet of native water rights and 19,907 acre-feet in recharge credits.

The two main features of Wichita's Proposal, i.e., the two main proposed modifications to the existing Wichita ASR terms and conditions, are to (1) lower the minimum index cell levels so that Wichita can better access any accumulated recharge credits (of whatever type allowed) during long-term drought, and (2) allow Wichita to accumulate recharge credits, in the form of Aquifer Maintenance Credits ("AMCs"), for Wichita's ASR operations when the Aquifer is full.

A. Lowering Minimum Index Cell Levels

Although Wichita proposes to lower the minimum index levels, DWR does not believe that the proposed new levels are that significant compared to the practical saturated thickness of the Aquifer. Indeed, if as a result of a 1% drought the water levels were to actually drop to the proposed minimum index levels under the Proposal, then according to Wichita's modeling the Aquifer still would be approximately 86% full across the Wellfield and 89% full across the entire

BSA. Accordingly, at this time DWR does not believe that such a lowering would amount to an unreasonable lowering of the water levels.

When the Aquifer levels were as low as they were in 1993, DWR did not receive any impairment complaints in the Wellfield area, to its knowledge. Thus at this time DWR does not believe it is likely that the lowering of the minimum index levels under the Proposal would result in the impairment of existing water rights. Furthermore, Wichita has indicated its commitment to protecting existing rights. If the Chief Engineer approves the proposed lower minimum index levels and then subsequently some owner of a water permit or right claims that Wichita's ASR activity is causing impairment, then DWR will investigate pursuant to its normal procedures and, if DWR determines that such impairment has occurred, then DWR will curtail Wichita's pumping or otherwise act to cure the impairment.

B. Accumulating AMCs

Currently, in order to accumulate recharge credits under Wichita's existing approved ASR program, there must be space in the BSA in which Wichita can inject treated water from the Little Arkansas River. When the BSA is full and at its maximum index cell level, Wichita cannot inject water into recharge wells under the current terms of its ASR project.

To accumulate ASR recharge credits when the BSA is full, Wichita could, under the existing conditions of their water rights, divert non-ASR water from the BSA wells, thereby creating a "hole" or space in the BSA. Then Wichita could inject treated surface water from the Little Arkansas River (assuming flows are high enough to allow it) and create ASR recharge credits for Wichita's future use. DWR believes that this would be an inefficient way to manage the Aquifer and operate the ASR project—i.e., pumping water out just in order to create space to put water right back in, so that ASR recharge credits could be accumulated. Moreover, leaving water

in state generally is preferable to frequent withdrawal and replacement, for purposes of more consistent finished water treatment and because of the increased risk for contamination that can occur with replacement.

The AMC concept and type of recharge credit that Wichita has proposed is a way for Wichita to accumulate recharge credits while keeping the Aquifer as full as possible. It would work like this: if flows in the Little Arkansas River are high enough, then Wichita would divert and treat excess surface water therefrom. To the extent there is space in the BSA, then Wichita would inject the treated water and generate a traditional (currently authorized) ASR recharge credit, i.e., a physical recharge credit. To the extent there is not space in the BSA, however, then Wichita would route the treated water directly to town for Wichita's immediate municipal needs, and Wichita would get corresponding AMC credits—just a different type of recognized ASR recharge credit. This essentially would enable Wichita to accumulate the same amount of ASR recharge credits but without having to exercise their right under existing ASR project provisions to “pump a hole” in the BSA in order to create the space needed in which to refill it with injected, treated surface water.

Prior to the initiation of formal proceedings in this matter, the Chief Engineer opined in a letter to GMD2 dated June 1, 2018, that AMCs, if allowed to be accumulated under the Proposal, would be deemed an additional form of recharge credit. DWR agrees with this opinion. Accordingly, DWR believes that AMCs would be in compliance with KAR 5-12-1 through 5-12-4, because they would be deemed just a different type of recharge credit, and recharge credits currently are allowed. DWR agrees with the other statements in the aforementioned letter, including the statement that there “may well be additional terms and conditions that will improve the accounting of AMCs or other changes that will better serve the public's interest.”

C. Additional DWR Opinions and Recommendations

DWR believes that the proposed modifications in the Proposal, if coupled with appropriate conditions, could be reasonable and in the public's interest because it is in the public's interest for the Aquifer to be full going into a drought. Accordingly, DWR recommends that, if any of the proposed modifications of the Proposal are approved, then at least the following permit conditions should be imposed:

- 1) conditions that impose a maximum recharge credit (whether physical recharge credits, or AMCs) accumulation amount of 120,000 acre-feet;
- 2) conditions that adequately ensure that other native rights in the area are protected from any impairment that may result, such as conditions that require Wichita to use pumping rotation and timing if conflicts occur, and that adequately protect current domestic use in the Wellfield;
- 3) conditions that adequately address the sequence of Wichita's priority pumping, i.e., pumping recharge credits vs. native water rights;
- 4) conditions that limit the usage of accumulated recharge credits to Wichita's overall authorized quantity; and
- 5) such other conditions that DWR or the Presiding Officer may deem appropriate to impose because of the information presented or received in the proceedings of this matter.

Based on such additional information that may be learned at the formal-phase hearing for this matter or otherwise, DWR reserves the right to revise or supplement its opinions and recommendations herein, by the post-hearing deadline provided by the Presiding Officer.

Division of Water Resources

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Respectfully submitted by,

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CERTIFICATE OF SERVICE

I certify that on this 18th day of March, 2019, the above *DWR's Pre-Hearing Brief and Written Testimony* was electronically filed with the Presiding Officer for this matter and that copies were sent via e-mail to the following:

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