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

INTERVENORS' PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

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COME NOW the Intervenors, and pursuant to the Hearing Officer's Order hereby submit the following proposed Findings of Fact and Conclusions of Law.

INTERVENORS' PROPOSED FINDINGS OF FACT

I. Background, Proposal, and Intervenors

1. The Aquifer Storage and Recovery ("ASR") program was established in regulations by Chief Engineer, David Pope, pursuant to the authority granted by the Kansas Water Appropriation Act. (See K.S.A. 82-706(a); Hearing Transcript, Vol. X, Pope p. 2702-2703, ll. 16-25, 1-25.) The Wichita ASR project was approved in two phases.

2. On September 14, 2004, Equus Beds Groundwater Management District No. 2 ("GMD2") and the City of Wichita ("City") agreed to a Memorandum of Understanding regarding ASR Phase I ("MOU1"). ASR Phase I was approved on August

8, 2005 and allows the recharge of treated surface water from the Little Arkansas River and adjacent bank storage water for recharge credits and to slow the migration of salt water contamination. (ASR Phase I Findings and Order; Public Hearing Handout December 11, 2018.) ASR Phase I was completed in September 2006.

3. ASR Phase II is comprised of applications filed on November 13, 2006, February 12, 2007 and October 8, 2008. (Findings and Order for the City of Wichita's ASR Project Phase II. David W. Barfield, September 18, 2009.) On December 3, 2008 the City and GMD2 entered into a Memorandum of Understanding regarding ASR Phase II ("MOU2"). (District Exhibit 27.)

4. On September 18, 2009 a Findings and Order for the ASR Phase II was issued. Phase II of the ASR project allows the recharge of treated surface water from the Little Arkansas River into the Equus Beds wellfield to accumulate recharge credits for subsequent use by the City. (Public Hearing Handout December 11, 2018.)

5. The Chief Engineer issued an Approval of Application and Permit to Proceed authorizing the diversion of 45,230 acre-feet per year to the City from Little Arkansas River flows under Application File No. 46,627 ("File No. 46,627"). This diversion was authorized for both Artificial Recharge to the basin storage area and for municipal use. (*See* Approval of Application and Permit to Proceed File No. 46,627, David W. Barfield, September 18, 2009.) The Chief Engineer also approved 24 additional permit applications, authorizing withdrawal of "groundwater recharge credits accumulated in the Equus Beds aquifer, that may be recovered pursuant to the operation of the approved aquifer storage and recovery project." Each Application and Permit to Proceed allowing

groundwater recharge as the authorized source for appropriations ASR Phase II includes a provision similar to the following found in File No. 46.714:

> "19. That the proposed recovery of water artificially recharged by the City shall only occur when recharge credits are determined to be available in Cell No. 6, and the static water level is above elevation 1,387 mean sea level (msl)."

6. A similar requirement reflecting the 1993 levels for each index cell is included for each of the recovery permits. (Hearing Transcript Vol. VIII, Boese, pp. 2102-2103, ll. 12-21; Application File Nos. 46,714 – 46,733 and 47,178-47,181 et al; District Exhibit 58.) Phase II of the ASR was complete and operating in 2013.

7. K.A.R. 5-1-1(mmm) defines Recharge Credit as the quantity of water that is stored in the basin storage area and that is available for subsequent appropriation for beneficial use by the operator of the aquifer storage and recovery system.

8. As early as 2014, the City was discussing the Aquifer Maintenance Credit concept with the Division of Water Resources ("DWR"). (Hearing Transcript Vol. VII, Letourneau, p. 1710, ll. 5-8.)

9. In March 2018, the City submitted the ASR Permit Modification Proposal Revised Minimum Index Levels & Aquifer Maintenance Credits, including Attachments A – J and a letter to the Chief Engineer ("Proposal"). This Proposal requests two changes (i) expand the concept of recharge credits to allow the City to accumulate Aquifer Maintenance Credits ("AMCs") for water pumped directly from the Little Arkansas River for municipal use and (ii) lower the minimum index levels between 9.1 ft. and 23.42 ft. across the basin storage area to allow the City to withdraw recharge credits at lower than the lowest known aquifer levels. (*See generally* City Exhibit 1, Proposal.)

10. On June 1, 2018 Chief Engineer David Barfield wrote a letter to the District stating: "AMCs should serve the public interest by facilitating fuller aquifer conditions without allowing the use or new or unappropriated water. This is accomplished by allowing the same source water currently used by Wichita's ASR project to be diverted and treated as if it would be injected into the aquifer, but instead allowing it to be diverted to Wichita, **offset by a reduction in pumping from Wichita's Equus Bed water rights**." (DWR Ex. 1, *emphasis added*.)

11. On June 28, 2018 a public informational meeting regarding the proposed changes was held at the Halstead High School Auditorium. A formal hearing was held December 10-12, 2019, March 2-5, 2020, February 3-5, 2021, and February 19, 2021. Public comments periods were held on December 11, 2018 in Wichita and December 13, 2019 in Halstead.

12. Intervenors represent domestic, irrigation and stock watering water users in various index cells throughout the Basin Storage Area. (*See generally* Motion to Intervene October 15, 2018; Intervenors' Exhibit 1; District Exhibits 16 and 17 Interrogatory No. 1; Hearing Transcript Vol. XII, Basore, p. 3235, ll. 10-25; Vol. XIII, Carmichael, p. 3324, ll. 18-22; Vol. XIII Carp, p. 3379, ll. 7-12, Administrative Notice taken Jan. 22, 2021.) Intervenors have wells located in areas projected to lose capacity from water level drawdown to proposed minimum index levels and wells at risk for greatest potential chloride migration. (District Exhibit 68, Figures 7 and 8; Hearing Transcript Vol. X, Romero, p. 2544-2545.)

13. Many Intervenors rely exclusively on the Equus Beds as their exclusive source of water. (Hearing Transcript Vol. XII, Basore, p. 3237, ll. 10-11; Vol. XIII,

Carmichael, p. 3324, l. 22; Vol. XIII, Carp, p. 3379, l. 24). The Intervenors hold water rights predating the City's proposal that were subject to safe yield analysis. (Hearing Transcript Vol. XII, Basore, p. 3301-3302, ll. 19-7.) The Intervenors include Century Farms; farms that have been farmed within the same family for over 100 years. (Id., p. 3317, ll. 12-16.) Intervenors do not represent all of the concerned residents or water users in the Basin Storage Area. (*See generally* public hearing comments December 11, 2018, December 13, 2019 and written public comments submitted to DWR.)

14. The Intervenors are concerned the City's proposed modifications to the ASR Project (1) are not consistent with the Kansas Water Appropriation Act, (2) the Chief Engineer lacks authority to make the proposed modifications, (3) changes have not been adequately studied to understand the potential impacts to water users and the health of the aquifer, (4) the proposed modifications would negatively impact minimum desirable streamflow, (5) granting a future credit for water not pumped sets a dangerous precedent, (6) should comply with safe yield policies to protect further over-appropriation, (7) will result in an unconstitutional taking and other concerns expressed in the Intervenors' Prehearing Brief, Public Hearings and this Findings of Fact and Conclusions of Law.

II. The City's Burden of Proof

15. In several prehearing orders the Chief Engineer or Hearing Officer declared:

> "The City shall bear the burden of proof, proving by a preponderance of the evidence that the proposed changes to the project should be approved. The proposed changes must meet the requirements set forth for Aquifer Storage and Recovery projects in K.A.R. 5-12-1 et al. and the requirements set forth in K.S.A. 82a-708b, including that the proposed changes are reasonable and will not cause impairment and that the proposed changes related to the same local source of supply. Whether or not a change is reasonable should consider the affect upon the public interest." (Order to Modify Hearing and Schedule, Barfield, David W., p. 1, September 27, 2018; Prehearing Order, Owen, Constance C., p. 2, April 12, 2019.)

16. K.S.A. 82a-708(b) addresses what must be shown when seeking a change application, and such application for change shall be approved or rejected according to the provisions and procedures for new applications to appropriate water under K.S.A. 82a-711. (Hearing Transcript Vol. VII, Letourneau, pp. 1658-1660, ll. 19-11.)

III. Aquifer Maintenance Credits ("AMC")

17. The proposed Aquifer Maintenance Credit ("AMC") represents a credit for water not pumped ("left in storage") from the City's ground water rights in the Equus Beds Well Field when physical recharge capacity in the aquifer is limited and the City elects to divert water directly from the Little Arkansas River flows. (Hearing Transcript Vol. VI, Letourneau, pp. 1439-1440, ll. 13-15; City Exhibit 1, Proposal p 3-1.) The AMC concept has been around and discussed since 2007. (Hearing Transcript Vol. IV, McCormick, pp. 1119-1120, ll. 25-6.)

18. The City proposes water diverted from the Little Arkansas River that cannot be physically recharged through the ASR System be considered an Aquifer Maintenance Credit with similar characteristics to current ASR Recharge Credits. (City Exhibit 1, Proposal, p 3-5.) The accumulation of AMCs is not limited by, or correlated to, the amount the City could have pumped from the aquifer but didn't. (Hearing Transcript Vol. VII, Letourneau, p. 1828, ll.18-23; *id.* Vol. VIII, p. 1984, ll. 4-12.) No physical recharge occurs to accumulate an AMC. (Hearing Transcript Vol. VI, Letourneau, p. 1453, ll. 13-17.)

19. The Approval and Permit to Proceed for File No. 46,627 allows a diversion from the Little Arkansas to be used for Artificial Recharge in the Basin Storage Area and for Municipal Use. The combined diversion quantity not to exceed 45,230 acre-feet per

year. (Approval of Application and Permit to Proceed File No. 46,627 September 18, 2009; Hearing Transcript Vol, VII, Letourneau, p. 1844, ll. 3-11.)

20. The City has been diverting water from the Little Arkansas River under File No. 46,627 for several years for immediate municipal use. (ASR Annual Accounting Reports 2014-2016; District Exhibit 75, p. 2-4.) Recharge credits are not currently accumulated for water diverted from the Little Arkansas River for municipal use. (Hearing Transcript Vol. VII, Letourneau, pp. 1809-1810, ll. 18-2; *id.* p. 1918, ll. 19-25.) The City proposes to use the same physical process for direct diversions for municipal use that do not include Recharge, as defined by K.A.R. 5-1-1(lll), or injecting water into the aquifer. (Hearing Transcript Vol. VII, Letourneau, pp. 1915-1917; City Exhibit 1, Proposal p. 3-1.) Recharge is theoretical for AMCs. (Hearing Transcript Vol. VI, Letourneau, pp. 1443-1444, ll. 23-1; City Ex. 1, Proposal p. 4-1.) AMCs seek to convert Equus Beds water into recharge credits by agency action with an accounting methodology. (Hearing Transcript Vol. VII, Letourneau, p. 1827, ll.18-19.)

21. The AMC proposal allows the City to pump a gallon of water from the Little Arkansas River and then withdraw another gallon of water from the Equus Beds aquifer at a later date. (Hearing Transcript Vol. VII, Letourneau, pp. 1737-1738, ll. 23-10.)

22. AMC accumulation rate will be based on the quantity of water treated and sent to the City under the authorization of File No. 46,627. (KDA-DWR Summary at public meeting June 28, 2018 p. 2; District Ex. 2, Pope Expert Report, p. 5.) AMCs, if deemed a recharge credit, could be withdrawn at any time consistent with the City's current permits for recharge and recovery wells with a recharge credit withdrawal limitation of

18,000[1] acre-feet. Withdrawal of AMCs is not limited to times of drought. (Hearing Transcript Vol. VII, Letourneau, p. 1695, ll. 14-18; Vol. VI, Letourneau, pp. 1515-1516. ll. 21-20.)

23. Aquifer Maintenance Credits are not defined under the Kansas Water Appropriation Act. (K.A.R. 5-1-1; Hearing Transcript Vol. VI, Letourneau, pp. 1501-1502, ll. 8-3.) The ASR Program was established in regulation, not statute. (Hearing Transcript, Vol. X, Pope p. 2703, ll. 8-10.)

24. "The Chief engineer shall adopt, amend, promulgate, and enforce such reasonable rules, regulations and standards necessary for the discharge of his or her duties and for the achievement of the purposes of this act pertaining to the control, conservation, regulation, allotment, and distribution of the water resources of the state." (K.S.A. 82-706(a)) Former Chief Engineer, David Pope testified "once you adopt a rule and regulation, then you must follow that rule and regulation until such time as it's changed or amended." (Hearing Transcript, Vol. X, Pope p. 2703, ll. 17-24.)

ASR Regulations under K.A.R. 5-12-1 et al.

25. Aquifer storage and recovery permitting regulations

> K.A.R.5-12-1 "Aquifer storage and recovery permitting. (a) An operator may store water in an aquifer storage and recovery system under a permit to appropriate water for artificial recharge if the water appropriated is source water…" *(emphasis added)*
>
> K.A.R. 5-1-1(yyy) "Source Water" means water used for artificial recharge that meets the following conditions: (1) is available for appropriation for beneficial use; (2) is above base-flow stage in the stream; (3) is not needed to satisfy minimum desirable streamflow requirements; and

[1] Note: The current annual limit on the City's ability to recover recharge credits is 18,000 acre-feet. Frequently throughout the hearing this was incorrectly stated as 19,000 acre-feet until corrected by the testimony of Mr. Boese. See Hearing Transcript Vol. VIII. 2266-2267.

(4) will not degrade the ambient groundwater quality in the basin storage area.

26. The authorized source under File No. 46,627 is surface water from the Little Arkansas River for either Artificial Recharge or Municipal beneficial use. (Approval of Application and Permit to Proceed, File No. 46,627, September 18, 2009.)

27. The City seeks to use the Equus Beds, specifically water not pumped from the Equus Beds, to accumulate AMCs. (Hearing Transcript Vol. VII, Letourneau, p. 1735, ll. 3-11.) The water not pumped, or water left in storage, is Equus Beds groundwater under what is frequently referred to as the City's native or existing water rights of 40,000 acre-feet (City Exhibit 1, Proposal, p. 2-3.) "The source water for these credits is the Little Arkansas River pursuant to Water Right File No. 46,627." (Hearing Transcript Vol. VII, Letourneau, p.1850, ll. 15-17; *Id.* p. 1929, ll. 11-15; DWR Ex.1.) No source water enters or is injected into the aquifer to accumulate an AMC. (Hearing Transcript Vol. VI, Letourneau, pp. 1454 – 1455, ll. 18-2; *Id*. Vol. VII, p. 1665, ll. 7-10; *Id*. p. 1734, ll. 20-21.) Mr. Letourneau testified as DWR's expert witness, that when an AMC is withdrawn from the aquifer the source of supply changes. (*Id.* pp. 1664, ll. 2-20.)

28. "K.A.R 5-12-1(b) states:

> Each applicant for a permit to appropriate water for artificial recharge shall describe the horizonal and vertical extent of the basin storage area in which the source water will be stored. (1)…The recharge system may include recharge pits, recharge trenches, recharge wells, or other similar systems that cause source water to enter the storage volume of the basin storage area, either by gravity flow or by injection."

29. A passive recharge credit is when source water is not injected into the aquifer. (Hearing Transcript Vol. VII, Letourneau, p. 1631, ll. 15-19.)

30. The City's proposal to modify accounting procedures to create AMCs does not involve a recharge pit, recharge trench, recharge well or cause source water (water diverted from the Little Arkansas River) to enter the storage volume of the basin storage area. (Hearing Transcript Vol. VII, Letourneau, p. 1647, ll. 8-15; *id* p. 1648, ll. 12-22; *id*. p. 1665, ll. 7-10.)

31. "…If more than one application for a permit to appropriate water for artificial recharge relates to the same aquifer storage and recovery system, each application shall use the same methodology for accounting water stored in the basin storage area." K.A.R. 5-12-1(d)(1).

32. The current accounting process is based on a comparison of groundwater modeling results using actual metered physical recharge and actual water levels. AMCs have only theoretical recharge so there are not actual water levels to compare making the current process impractical. AMC recharge is a relabeling of water. (Hearing Transcript Vol. II, Pajor, p. 340, ll. 4-25.)

33. "The fundamental differences between the processes used to generate physical recharge credits and AMCs will require an alternative or modified accounting process for AMCs." (City Exhibit 1, Proposal, p. 3-6.). The City is not proposing any modifications to the current physical recharge accounting process. (*Id*. p. 4-2.)

K.S.A. 82a-708b. Demonstrate reasonable, no impairment and same source of supply.

34. Changes pursuant to K.S.A. 82a-708b are processed similar to new applications and must follow K.S.A. 82a-708a, 82a-709 through 714 and relevant regulations. (District Exhibit 2, Pope Expert Report, p. 7.)

35. "If a water right owner proposes a change to an existing water right, the burden is on the owner of the water right to **demonstrate** to the chief engineer that the proposed change: (1) is reasonable, (2) will not impair existing water rights [meaning all water rights, permits, and applications with a priority date senior to the change application (senior water rights) not just those senior to the original priority], (3) will not prejudicially and unreasonably affect the public interest, and (4) will not cause an unreasonably raising and lowering of the static water level." (K.S.A. 82a-708b; K.S.A. 82a-711; District Exhibit 2, Pope Expert Report, p. 7.) *emphasis added.*

36. DWR assessed impairment potential by looking at Proposal Figure 11 and determined the remaining saturated thickness with about 80 percent aquifer fullness that impairment wouldn't occur. (Hearing Transcript Vol. V, Letourneau, p. 1256-1257; *id.* at p. 1260. ll. 10-11.) DWR did not consider past spacing waivers or the exemption from well spacing requirements when determining the proposed modifications would not cause impairment. (Hearing Transcript Vol. V, Letourneau, p. 1312, ll. 5-11.)

37. DWR further concluded the proposed lowering of the aquifer levels is not unreasonable stating that it allows the City the option to leave recharge credits in the aquifer longer. (Hearing Transcript Vol. V, Letourneau, p. 1262, ll. 1-4.)

38. DWR did not analyze any of the City's modeling, performed no independent testing of the City's modeling, and did not perform any simulations to assess the correctness or accuracy of the City's modeling. (Hearing Transcript Vol. V, Letourneau, p. 1345, ll. 1-18.)

39. The City did not file an application to change the place of use, point of diversion or use made of water pursuant to K.S.A. 82a-708b(a). Similarly, the City did not

pay any application fees with the Proposal as provided in K.S.A. 82a-708b(b). (Hearing Transcript Vol. V, Letourneau, p. 1255, l. 5-11; Vol. VII, Letourneau, p. 1666, ll. 8-16.)

1. Reasonableness

a. Credit for water not pumped.

40. AMCs represent water that could have been pumped but is left in storage or not pumped (Hearing Transcript Vol. VI, Letourneau, p. 1515, ll. 6-8.) AMCs are not artificial recharge. (Hearing Transcript, Vol. VIII, Boese p. 2238, ll. 19-20).

41. AMCs do not add water into the aquifer. (Hearing Transcript, Vol. VIII, Boese p. 2238, ll. 23-24.)

42. "In normal administration of water rights in Kansas, water not pumped during a given calendar year cannot be pumped in a later year, except under specific circumstances authorized by Kansas Law." (District Ex 2, Pope Expert Report, p. 9.)

43. The proposed AMCs will have the effect of increasing the City's consumption under its existing water rights without filing a new or change application. (District Ex 2, Pope Expert Report, p. 8.)

44. The AMC concept proposes a credit for not pumping water when physical recharge capacity is not available. (Hearing Transcript Vol. X, Pope, p. 2711, ll. 5-12.)

45. Water users regularly leave water in the aquifer without the benefit of a future credit. Irrigation users pump what is reasonable which varies based on precipitation. (Hearing Transcript, Public Hearing December 13, 2019 pp. 39-40; Hearing Transcript Vol. XII, Basore, pp. 3244-3245, ll. 24-8.) On average across the state, irrigators use approximately 65%-70% of their authorized quantity each year. (Hearing Transcript Vol. VII, Letourneau, p. 1749, ll.1-5.) There is not a future credit for irrigators when they leave

water in the aquifer. (Hearing Transcript Vol. XII, Basore, pp. 3245-3246, ll. 24-9). Farmers and Ranchers have been recharging the aquifer since 1870 through both percolation and precipitation (Hearing Transcript Vol. XII, Basore, pp. 3245-3246, ll. 24-9.).

46. Increased precipitation and decreased pumping by both agricultural users and the City in 2015 resulted in increased water levels in January 2016. "The average groundwater-level increase in the shallow part of the aquifer between January 2015 and January 2016 was 3.37 ft in the study area, 3.82 ft in the BSA and 4.50 ft in the WWF." (District Exhibit 45, USGS SIR 2016-5165, p. 5)

47. Irrigators invest in water conservation efforts including changes from flood to pivot irrigation and sprinkler efficiencies to make every drop of water count. (Hearing Transcript Vol. XIII, Carmichael, p. 3327, ll. 14-24.) Irrigators invest in conservation which leaves more water in the aquifer but do not receive a future credit for the water left in the aquifer or the water not pumped. (Hearing Transcript Vol. XIII, Carp, p. 3382, ll. 10-16.)

48. Water users also invest in more efficient systems for significant water conservation without the benefit of a future credit or ability to use conserved water. (Hearing Transcript Vol. XIII, Carp, p. 3381, ll. 8-21.) Irrigators have been denied permission to water additional acres based on conservation efforts, not to use extra water, just to use an existing appropriation spread across more acres based on investment in conservation. (Hearing Transcript Vol. XIII, Carp, p. 3390, ll. 3-10.) The water saved switching from flood to pivot irrigation has the estimated potential to irrigate another 80

or 100 acres if irrigators were allowed to continue using the same quantity of water after implementing conservation efforts. (Hearing Transcript Vol. XIII, Carp, p. 93, ll. 15-17.)

b. Expanding appropriation in an over appropriated area of the aquifer.

49. "It has been a bedrock principle of Kansas water law that once a permit is granted, no changes may be made to it that would expand the quantity of water diverted or the quantity of water consumed. 'The extent of consumptive use shall not be increased substantially after a vested right has been determined or the time allowed in which to perfect the water right has expired'…". (K.A.R. 5-5-3; Hearing Transcript Vol. X, Pope, p. 2716, ll. 11-20; *Id.* p. 2717, ll. 5-21; District Ex. 2, Pope Expert Report, p. 9.)

50. The maximum annual quantity authorized by a water permit cannot be increased. (Hearing Transcript Vol. X, Pope, p. 2707. ll. 3-14)

51. AMCs seek to divert water from the Equus Beds that the City never put in the Equus Beds. (District Ex. 2, Pope Expert Report, p. 9.)

52. DWR describes AMCs serving the public interest by diverting Little Arkansas flows directly to the City which are "offset by a reduction in pumping from Wichita's Equus Beds water rights." (DWR Ex. 1, June 1, 2018 letter to GMD2, p.1.)

53. The water diverted and sent directly to town may or may not offset what the City could have pumped from the aquifer. There is no requirement for the City to reduce pumping from the Equus Beds to accumulate AMCs. (Hearing Transcript Vol. VIII, Letourneau, p. 1984, ll. 4-12.)

54. The AMC concept increases the consumptive use of existing water rights in likely violation of Kansas Regulations. (Hearing Transcript, Vol. X, Pope p. 2718, ll. 21-25.)

55. The proposed AMCs, as a new form of recharge credit, would allow the City to expand their ability to accumulate recharge credits at a much faster rate than the City is able to accumulate physical recharge credits. Allowing the City create more recharge credits allows the City to pump more water from the Equus Beds. (Hearing Transcript, Vol. IX, Boese pp. 2387-2388, ll. 23-3.)

56. The Wichita Well Field Area is over appropriated because the area is beyond the safe yield for the aquifer and new applications in the area are not being approved. (Hearing Transcript, Vol. VII, Letourneau, p. 1820, ll. 14-23.)

c. Reasonableness of the proposed 120,000 acre-feet cap.

57. Physical Recharge Credits are hard to accumulate; past experience shows they are difficult and the City is unlikely to reach 120,000 acre-feet with the current ASR equipment and regulations. The City has not achieved 1,000 acre-feet credits per year during over ten years of operation. (Hearing Transcript, Vol. IX, Boese p. 2411, ll. 12-18.) Based on the gradational losses, it would take a long time for the City to accumulate close to 120,000 acre-feet of credits based solely on the recharge credits allowed in ASR Phase II. (Hearing Transcript Vol. VII, Letourneau, pp. 1699-1700, ll. 22-3; *Id.* p. 1847, ll. 13-14.)

58. In addition to aquifer properties generally, the City's ASR infrastructure (treatment plant, treated water transmission limits, raw water delivery from the river to treatment plant) and availability of raw water in the Little Arkansas River are all physical limitations that limits the quantity of physical recharge credits the City is able to accumulate. (Hearing Transcript Vol. 1, Pajor, p. 254, ll. 4-12.)

59. The current minimum index levels act as a cap or physical limitation on the recovery of credits. (Hearing Transcript, Vol. X, Romero, p. 2669, ll. 10-14.)

60. The City estimates 60,000 acre-feet is needed for the 1% drought protection. (Hearing Transcript Vol. 1, Pajor, p. 195, ll. 21-23; *Id.* Vol. V, McCormick, p. 1155, ll. 19-22; Proposal Table 2-5.) The City and DWR testified to various theories to support the proposed 120,000 acre-feet cap on recharge credits. The 120,000 acre-feet cap allows the City to bank credits for back to back 1% droughts. (Hearing Transcript, Vol. 1, Pajor, p. 269, ll. 12-14; *Id.* Vol. VI, Letourneau, p. 1489, ll. 3-18.) A contingency of 60,000 acre-feet was added to the amount of credits the City would like to hold for a 1% drought bumping it up to 120,000 acre-feet. 120,000 acre-feet coincides with the volume of storage that had been depleted and was available storage in the aquifer. (Hearing Transcript Vol. V, McCormick, p. 1155-1156, ll. 23-25, 1-10; *Id*. Vol. VI, Letourneau, p. 1485, ll. 14-18.)

61. The simulated drought and basis for the City's model shows fewer than 50,000 acre-feet of recharge credits being withdrawn from the BSA during the 10 year simulated drought[2]. (City Exhibit 1, Proposal, p. 2-10 Figure 2-5.)

62. The City's drought simulation is based on 1998 starting conditions and reflects the City will be able to divert/withdraw approximately 94,400 acre-feet of credit water from the BSA if the minimum index levels are lowered as requested. Any remaining Recharge Credits would be stranded based on the drought simulation. (Hearing Transcript, Vol. IX, Romero, p. 2504, ll. 15-19; *Id*. p. 2507, ll. 7-25; District Ex. 68, Romero Expert Report, p. 6.)

2. Impairment

[2] Note: Error identified in credit calculation for Stress Period 5 ASR Credit Pumping. Correct figure is 16,579 acre-feet. Stress period 3 reflects 19,907 acre-feet in credits; however, this is limited to 18,000 acre-feet annually.

63. K.S.A. 82a-708(b) and K.S.A. 82a-711(c) address impairment. "Whether a proposed use will impair a use under an existing water right, impairment shall include the unreasonable raising and lowering of the stating water level…" (Hearing Transcript Vol. VII, Letourneau, pp. 1670, ll. 21-3; District Ex. 2, Pope Expert Report p. 7.)

64. Groundwater pumping has the potential to impair surface water rights. (Hearing Transcript, Vol. XII, Austin, p. 3118, ll. 12-14.) Withdrawing 120,000 acre-feet of recharge credits at the allowed rate of 19,000[3] acre-feet per year has the potential to cause impairment to other wells in the basin storage area. (Hearing Transcript Vol. VII, Letourneau, p. 1700, ll. 13-23.)

65. The groundwater elevations at the end of the proposal's simulated 8-year drought reflect approximately 50,000 acre-feet of credits withdrawn from the Basin Storage Area. (Proposal Figure 6, Table 2-5.)

66. The Wichita well field area is over-appropriated and beyond safe-yield for the aquifer. (Hearing Transcript, Vol. I, Pajor, p. 220, ll. 1-3; *Id*. Vol. VII, Letourneau, p. 21-23; *Id*. Vol. VIII, Boese p. 2205, ll. 14-15.) In an over-appropriated aquifer, all of the water available according to safe yield, has already been dedicated to other water users. (Hearing Transcript, Vol. VIII, Boese pp. 2257-2258; Vol. XI, Boese pp. 2965-2966, ll. 4-25.)

67. New appropriations, or increases in consumptive use in the well field area have been denied due to Safe Yield as early as the 1980s. (Public Written Comments, Mr. Floyd Holle December 13, 2019, Letter dated July 15, 1980.)

[3] Should be 18,000 acre-feet

68. The only way to dedicate water to anybody else is by adding to the resource, by injecting treated source water into the aquifer, that then becomes additional supply. (Hearing Transcript, Vol. IX, Boese p. 2408, ll. 4-10.)

69. Not pumping water from the aquifer does not add to the supply. (Hearing Transcript, Vol. IX, Boese pp. 2408-2049, ll. 14-2.) The proposed AMCs do not involve physically recharging water to the aquifer or placing water in the aquifer for storage. In withdrawing AMCs from the aquifer, the City would be diverting water others have a priority right to divert. (Hearing Transcript, Vol. X, Pope p. 2726-2727, ll. 20-25, 1-7; District Exhibit 2, Pope Expert Report, p. 9.)

70. AMCs would allow a substantially larger quantity of groundwater to be withdrawn from the well field area during a drought when the demand for and value of water are at the highest points. (Hearing Transcript Vol. X, Pope, p. 2731, ll. 14-23; District Exhibit 2, Pope Expert Report, p. 10.)

71. MODFLOW has numerous post-processing tools available that allow more accurate water level interpolation within each individual grid cell. (Hearing Transcript Vol. XIV, McCormick, p. 3510, ll. 7-11.) Burns & McDonnell did not engage such post processing tools in developing the Proposal. (Hearing Transcript Vol. XIV, McCormick, p. 3511, ll. l-4.) Paul McCormick with Burns & McDonnell testified using post processing tools to look at more narrow areas of the aquifer, including individual wells would not add significant value because there are so many unknowns and conditions that change throughout the year. (Hearing Transcript Vol. XIV, McCormick, p. 3511, ll. 21-25.)

72. The City did not do any modeling, MODFLOW or otherwise, to determine the impact of the City's proposal on water quality. (Hearing Transcript, Vol. IV,

McCormick, p. 1109, ll. 5-12.) Mr. Letourneau, as the head of the water appropriation program was responsible for making a recommendation regarding the City's proposal. (Hearing Transcript Vol. V, Letourneau, pp. 1380 – 1381, ll. 20-20.) Mr. Letourneau testified DWR did not attempt to replicate, perform any independent modeling work, independent simulations, modeling the impact on water quality, or analyze the City's modeling. (Hearing Transcript Vol. V, Letourneau, pp. 1378 – 1380; *Id.* Vol. VII, p. 1684, ll. 1-8.) DWR did not perform any independent data collection, calculations or measurements to evaluate or verify the City's modeling or proposal. (Hearing Transcript Vol. V, Letourneau, pp. 1360-1361, ll. 9-18; *Id*. at Vol. VI p. 1528, ll. 6-8.).

3. Public Interest

73. Several factors are considered in determining whether a proposed use will prejudicially and unreasonably affect the public interest, including: (1) minimum desirable streamflow requirements (2) the area, safe yield and recharge of the appropriate water supply; (3) the priority of existing claims of all persons to use the water of the appropriate water supply; (4) the amount of each claim to use water (5) all other matters pertaining to such questions." (K.S.A. 82a-711(b); District Exhibit 2, Pope Expert Report, p 7.)

74. One Intervenor testified, given the fragility of our system, anytime somebody is applying for a water permit in the Equus Beds it is in everybody's best interest to do what we can to protect the balance of recharge and withdrawals, including safe yield analysis. (Hearing Transcript Vol. XII, Basore, p. 3302-3303, ll. 16-5.) Safe yield is a calculation considering the balance between the recharge and discharge of the aquifer and directly related to quantity of water available for appropriation. (Hearing Transcript Vol. VIII, Letourneau, pp. 1979-1980, ll. 24-4.)

75. The only basis provided by DWR to support its determination AMCs serve the public interest is because it facilitates a fuller aquifer. (Hearing Transcript Vol. V., Letourneu, p. 1270, ll. 1-4; *Id*. *see generally* pp. 1402 - 1404.) Nothing in the City's Proposal requires the City to maintain a full aquifer, limits the City's ability to withdraw native rights or restricts the City from withdrawing existing recharge credits. (Hearing Transcript Vol. VII, Letourneau, p.1704, ll. 3-6; *Id.* pp.1883-1885, ll. 7-13.)

76. Neither the Proposal nor current regulations and statutes require the City to delay withdrawing credits or meet any criteria whatsoever before withdrawing accumulated credits. (Hearing Transcript Vol. VI, Letourneau, pp. 1432-1433, ll. 21-2.)

Impact of Aquifer Maintenance Credits on Safe Yield

77. Safe Yield applies to every new appropriation and is considered when reviewing a new application or a change application. (K.S.A. 82a-711; K.A.R 5-3-10; K.A.R. 5-22-7(a); Hearing Transcript, Vol. VI, Letourneau, pp. 1504-1505, ll. 24-2; *Id.* at Vol. VIII, Boese p. 2175, ll. 3-12.)

78. Safe Yield is calculated based on the authorized quantity, proposed quantity, and the recharge rate of the aquifer for that area of consideration. (Hearing Transcript, Vol. IX, Boese p. 2383, ll. 3-6; K.A.R. 5-22-7.) Safe yield helps to determine what is in the public interest reflecting the amount of water the aquifer will safely provide. (Hearing Transcript Vol. VII, Letourneau, p. 1673, ll. 7-15.) The public interest is served by only appropriating the safe yield of a water resource. (*See* K.A.R. 5-3-9(b); District Exhibit 22; Hearing Transcript, Vol. VIII, Boese p. 2212, ll. 4-16.)

79. Applications for Aquifer Storage and Recovery wells are exempt from safe yield because Artificial Recharge is a different source of water. The safe yield exemption

was drafted and enacted when only physical artificial recharge was available with no subsequent modification to address AMCs. (Hearing Transcript Vol. VI, Letourneau, p. 1500, ll. 8-25; *Id.* Vol. VIII, Boese p. 2211, ll. 8-9; *see also* K.A.R. 5-22-7(b)(7).)

80. The City's Proposal is not an application for an Aquifer Storage and Recovery Well. The City seeks to create AMCs under an alternative procedure for establishing recharge credits. (City Exhibit 1, Proposal, p. 3-1.)

81. AMCs seek to divert "native water present in the Aquifer, which is there as a result of recharge from precipitation and the required return flow from other water rights in the area. To divert such native water, the City is required to file new applications to divert native water from the Equus Beds." (District Ex. 2, Pope Expert Report, p. 9). Such a new application would be subject to GMD2 regulations, including Safe Yield, K.A.R. 5-22-7.

82. AMCs are not exempt from safe yield (Hearing Transcript, Vol. VIII, Boese p. 2211, ll. 11-13). "To be able to be exempt from safe yield, to gain approval for a new appropriation right, you must add water to the system. That is not water left in storage; that is adding outside source water to the system. An AMC does not do that." (Hearing Transcript, Vol. VIII, Boese p. 2211, ll. 20-25.)

83. If the City were applying for new permits for the water requested as an AMC those applications would not be recommended for approval due to failing safe yield. "There is no water available in the City of Wichita's existing well field for new appropriations…" (Hearing Transcript Vol. VIII, Boese, pp. 2223-2224, ll. 20-8.)

84. Safe Yield requirements have prevented new permits, other than ASR permits and very small use permits in the Wichita Well Field Area for a long time. (Hearing Transcript, Vol. VIII, Boese p. 2220, ll. 19-24.)

Passive Recharge Credits are prohibited

85. During the initial review of the ASR Program and promulgation of the Rules and Regulations there was an extensive review of passive recharge credits internally at Division of Water Resources and determined, after careful consideration, that the passive recharge "concept was not consistent with the law because no physical recharge actually occurred using that method." (Hearing Transcript, Vol. X, Pope p. 2707, ll. 3-14.)

86. Mr. Pope, the former Chief Engineer responsible for implementing the ASR Regulations and approving Phase I testified, passive recharge credits were "a front-and-center question" and "central to the development of the project" during the Phrase I review and approval. (Hearing Transcript Vol. IX, Pope, p. 2813, ll. 1-5.)

87. Passive recharge credits were described as water which the City could have legally pumped but did not pump or getting credit for water not legally pumped from the City's native water rights. (Hearing Transcript, Vol. VIII, Boese p. 2094, ll. 11-18.)

88. The Phase I Findings describe the issue of passive recharge as "water which the City could have legally pumped, but did not pump." (*See* Findings and Order August 8, 2005 p. 2 of 21; District Ex. 26 p 11; *see also* Hearing Transcript Vol. VII, Letourneau, pp. 1633-1634, 25-9; *id.* Vol. X, Pope, p. 2707, ll. 18-22.)

89. The Phase I Findings and Order dated August 8, 2005 concluded: passive recharge credits should not be allowed because they are not "artificial recharge" as defined in K.A.R. 5-1-1, because no source water is being artificially recharged to create those

credits. (*See* Findings and Order August 8, 2005 p. 11; District Ex 26; Hearing Transcript Vol. VII, Letourneau, p. 1631, ll. 4-9; *id.* Vol. X, Pope, p. 2708, 10-23; *id.* Vol. VIII, Boese p. 2094, ll. 1-6; District Ex 2, Pope Expert Report, p. 3.) Passive recharge shall not be considered as inflow and shall be excluded from any water balance calculations. (Phase I Hearing Transcript Vol. I, p. 282, ll. 5-7.)

90. Passive recharge credit is not a defined term in applicable statutes or regulations. Mr. Letourneau testified DWR believes passive recharge credits should be prohibited. (Hearing Transcript Vol. VII, Letourneau, pp. 1632-1633, ll. 20-1.)

91. The Phase II Findings and Order, dated September 18, 2009, includes similar language and clearly states passive recharge credits shall not be allowed. (*See* District Exhibit 28 p. 2; *id* at p. 5; Hearing Transcript, Vol. VII, Letourneau, pp. 1635-1636, ll. 20-12; *id.* Vol. X, Pope, pp. 2709-2710, ll. 24-4.)

92. Passive recharge credits are recharge credits accrued as a result of not pumping water from the city's existing wells in the Wichita well field area of the Equus Beds. Passive recharge is not consistent with the law because no physical recharge actually occurs. (Hearing Transcript, Vol. X, Pope, p. 2707, ll. 11-22.)

93. The City proposes the "water left in storage as a result of utilizing Little Arkansas River flows rather than groundwater from the EBWF would be considered as an ASR Aquifer Maintenance Credit with similar characteristics to the current ASR recharge credits." (Hearing Transcript, Vol. VII, Letourneau, p. 1640, ll. 13-20; *id.* Vol. VIII, Boese p. 2204, ll. 5-11; *See also* City Exhibit 1 p. 1-2.)

94. Water "left in storage" refers to groundwater not pumped from the Equus Beds. Water credits are not issued or granted for water users electing to use surface water

in lieu of pumping groundwater. (Hearing Transcript, Vol. VIII, Boese p. 2010, ll. 8-12.) A water user cannot re-appropriate water that is not pumped. "Water that's not pumped does not go back – into the pot, so to speak, that can be re-appropriated." (Hearing Transcript, Vol. VIII, Boese p. 2205, ll. 14-19.)

95. The definition of Recharge Credit is not limited to the Little Arkansas River opening up many options if a Recharge Credit can be accumulated by not pumping a water right. (K.A.R. 5-1-1(mmm.) "[G]etting credit for not pumping a well can really lead to unintended consequences." (Hearing Transcript, Vol. X, Pope p. 2722, ll. 22-24.)

96. "Farmers and ranchers have been…actively or passively recharging the Equus Beds since they first put plows into the sod in 1870 out here." Irrigators pump what is reasonable which is not always the full authorized amount, regularly leaving water in the aquifer without credit for the water not pumped or left in the aquifer. (Hearing Transcript Vol. XII, Basore, pp. 3244-3246.)

97. Allowing AMCs where actual source water is not physically recharged would likely allow the City to develop recharge credits, without performing physical recharge, and then withdraw those credits during a drought period. This could result in substantially more water use with harmful effects on the aquifer during the prolonged drought period. (Hearing Transcript, Vol. X, Pope p. 2725-2726, ll. 14-25, 1.)

98. AMCs are a form of passive recharge, which are not authorized by the KWAA, or the Chief Engineer's ASR rules and regulations. (Hearing Transcript, Vol. X, Pope p. 2729, ll. 3-25; Hearing Transcript, Vol. VIII, Boese p. 2205, ll. 1-8.)

Aquifer Maintenance Credits under Kansas Water Law

99. In Kansas neither the KWAA nor any of the regulations adopted pursuant to it, expressly authorize the use or concept of AMCs. The City's proposed ASR aquifer maintenance credit, or AMC, proposal… is inconsistent with the provisions of the Water Appropriation Act, K.S.A. 82a-701 et seq., nor the regulations promulgated thereunder… most specifically K.A.R. 5-1-1, 5-12-1 through 5-12-4, as well as K.A.R. 5-22-1, 5-22-10 and 5-22-17. (Hearing Transcript, Vol. X, Pope, p. 2711, ll. 13-16; *id.* p. 2728, 10-23; District Ex 2, Pope Expert Report, p. 8.)

100. The ASR regulations are clearly based on having a water right owner deposit real physical water into an aquifer, and not get fictional credits to later divert water from the aquifer for delivering surface water directly to the City." (District Ex 2, David Pope Expert Report, p. 8.)

101. The definitions in K.A.R. 5-1-1 provide support for disapproving AMCs. (Hearing Transcript Vol. X, Pope, pp. 2711-2712, ll. 17-5.)

Relevant definitions

102. Relevant definitions under K.A.R. 5-1-1

> (e) "Aquifer Storage" means the act of storing water in an aquifer by artificial recharge for subsequent diversion and beneficial use.
>
> (f) "Aquifer storage and recovery system" means the physical infrastructure that meets the following conditions: Is constructed and operated for artificial recharge, storage and recovery of source water; and consists of apparatus for diversion, treatment, recharge, storage, extraction and distribution."
>
> (g) "Artificial recharge" means the use of source water to artificially replenish the water supply in an aquifer.
>
> (mmm) "Recharge credit" means the quantity of water that is stored in the basin storage area and that is available

> for subsequent appropriation for beneficial use by the operator of the aquifer storage and recovery system.
>
> (yyy) "Source water" means water used for artificial recharge that meets the following conditions: (1) is available for appropriation for beneficial use; (2) is above base-flow stage in the stream; (3) is not needed to satisfy minimum desirable streamflow requirements; and (4) will not degrade the ambient groundwater quality in the basin storage area.

103. AMCs do not meet the criteria included in the definitions found in the Kansas Water Appropriation Act Rules and Regulations. (Hearing Transcript, Vol. X, Pope, pp. 2713-2714, ll. 24-2.)

104. An aquifer storage and recovery system involves the physical injection, storage and then the recovery of source water, three steps would be injection, storage, and then eventual recovery. (Hearing Transcript, Vol. VIII, Letourneau, p. 1955, ll. 2-14, *id.* Boese, p. 2236.)

105. AMCs seek two beneficial uses from the same unit of water. Water is diverted from the Little Arkansas River for municipal use and subsequently the City seeks to withdraw water from the Equus Beds in the form of a recharge credit to again use for municipal use. (Hearing Transcript, Vol. VIII, Boese, p. 2272, ll. 8-12.)

106. Accumulating AMCs does not put actual source water into the basin storage area. (Hearing Transcript Vol. VIII, Letourneau, p. 1966, ll. 5-10.) AMCs do not store water in the aquifer for subsequent diversion. (*Id.* Vol. VIII, Boese, p. 2243, ll. 6-9.)

Creation of AMCs by Accounting Process

107. The City seeks to create AMCs with a new accounting methodology without any amendments or changes to existing rules and regulations. (Hearing Transcript Vol. V, Letourneau, p. 1270, ll. 9-12.)

108. Establishing AMCs as an additional type of recharge credit is not an accounting issue. AMCs are inconsistent with the adopted rules and regulations or the Phase I and Phase II orders. (Hearing Transcript, Vol. X, Pope pp. 2759-2760; *see also* District Ex. 26, p. 15.)

109. The City proposes to switch from a model driven accounting process looking at each index cell to a methodology based on a percentage loss. (Hearing Transcript, Vol. XII, Austin p. 3110, ll. 13-25.)

110. "The accounting of the water balance of all water entering and leaving the basin storage area shall be determined using sound engineering methods based on actual measurements or generally accepted engineering methodology or a combination of both." (*See* Phase I Hearing Transcript Vol. I, pp. 128-129.)

111. The MODFLOW model originally constructed and created by the U.S.G.S. to account for water balance in the BSA represents the best engineering methodology currently available to account for the water balance in the basin storage area. (*See* Phase I Hearing Transcript Vol I, p. 129, ll. 9-15.)

Proposed Accounting Method

112. There is a deviation between the current and proposed accounting. (Hearing Transcript, Vol. X, Romero, p. 2556, ll. 23-25.) In 2015 the variance is almost 1,000 feet between the current physical recharge and the proposed AMC accounting methods. (Hearing Transcript Vol. VI, Letourneau, p. 1615, ll. 7-11.) The proposed simplified accounting method should be enhanced to see if the deviation can be accounted for (Hearing Transcript, Vol. X, Romero, p. 2557, ll. 1-5.)

113. The City proposed a 5% initial loss and 3% recurring loss. This proposed loss percentage is lower for both initial and migration losses than what has been actually experienced with the current model-based methodology. (City Exhibit 1 Proposal p. 4-3; Hearing Transcript, Vol. XII, Austin p. 3109, ll. 19-25; *Id.* p. 3111, ll. 8-25.)

114. The recharge credit retention percentage published on page 4-2 Proposal is incorrect. Rather than 85%, the retention during the 2006 to 2015 period was actually 73% and 64% for the period of 2006 to 2016. (Hearing Transcript Vol. V, McCormick, p. 1182; *id.* pp. 1189-1190.)

115. Past annual ASR accounting reports do not support the loss percentages used in the proposed accounting methodology. (Hearing Transcript, Vol. XII, Austin p. 3112, ll. 15-20.) Actual credit losses reflect an initial loss as much at 8% or 9% rather than 5% as proposed. Actual credit loss due to migration appeared to be more than 10% based on annual accounting reports.

116. For artificial storage and recovery utilizing an aquifer, the aquifer conditions dictate the migrational losses. High or full aquifer levels cause higher losses. (Hearing Transcript Vol. XII, Austin, p. 3167, ll. 15-17.)

117. The accounting methodology should reflect actual conditions, including losses, not some other condition. (Hearing Transcript Vol. XII, Austin, p. 3168, ll. 1-9.)

118. A natural consequence of a fuller aquifer is that more water will be discharged to the stream, physically you have a higher quantity of recharge credits being lost to streamflow. (Hearing Transcript, Vol. XII, Austin pp. 3113-3114, ll. 19-6.) With a full aquifer state, the basin storage area is leaking more downstream than it would be if the aquifer were at a lower state. (*Id.* p. 3118, ll. 5-9.)

119. Mr. Letourneau testified the error in retention percentage provided raises questions regarding the proposed accounting method and DWR intends to take another review of the loss percentages. (Hearing Transcript Vol. VI, Letourneau, p. 1458, ll. 15-22; *See also* City Exhibit 1, p. 4-2.)

IV. Minimum Index Levels

Background of Minimum Index Levels.

120. The Minimum Index Levels are a fundamental aspect to both Phase I and Phase II of the Wichita ASR Project. (Hearing Transcript Vol. VII, Letourneau, p. 1687, ll. 2-5.)

121. The lowest index water level shall be determined per K.A.R. 5-12-1(b)(2). (*See* Phase 1 MOU Attachment A, p. 2.) From its September 22, 2000 effectiveness until amended April 29, 2016, K.A.R. 5-12-1(b)(2) stated: "The vertical extent shall be defined by a minimum and maximum index water level for the basin recharge storage area… The minimum index water level shall be the lowest water level within the basin storage area, or smaller subdivided area if the basin storage area is subdivided, that occurred within the 10 years before the filing of the application for a permit to appropriate water, or a period of time longer than 10 years demonstrated by the applicant to reflect the lowest water level."

122. For ASR Phase I the lowest water levels for each of the 38 cells were set forth in Attachment 4 to the order. (Phase I Findings and Order, Finding 30, pp. 5-6 and Attachment 4; Phase 1 Hearing Transcript p. 120, ll. 21-25, p. 121, ll. 14-25)

123. The public interest in not diverting Equus Beds groundwater is protected by operating the ASR project to prevent withdrawal of recharge credits below the minimum index level. (Phase I Findings and Order, Conclusion 13, p. 12; Hearing Transcript Vol.

VI, Letourneau, p. 1595, ll. 16-25; *id.* p. 1826, ll. 6-11; *id.* at Vol. VIII, Boese, p. 2097, ll. 3-7.)

124. Recharge credits may be withdrawn from a cell only when recharge credits are available from the cell and the static water level at its index well is above the lowest index level. (*See* Phase I Findings and Order, Order 8 p. 15; Phase II Findings and Order, Finding 11G, p. 3 and Order 8 p. 5; Hearing Transcript, Vol. VIII, Boese p. 2097, ll. 3-7.)

125. During the Phase I hearing Gerald Blain testified "the City's applications also allow water to be pumped from the wells only when there are recharge credits available and water levels are above the minimum water levels identified for the individual cells. Therefore, the operation of these wells cannot impair other water users because the aquifer will have to be higher than the base elevation before they can even be operated." (Blain, Jerry. ASR Phase I Public Hearing Transcript at 133)

126. In 2008 it was agreed "[b]ecause the Project recharge and recovery wells can only be pumped if water levels in the aquifer are higher than the historic low level, no impairment is expected." (*See* District Ex. 27, Phase II MOU, Issue 6.)

127. The Minimum Index Levels are included on the individual permits to recover ASR credits, limiting the recovery of artificially recharged water to occur when credits are available and the static water level is above elevation 1,387 mean sea level (District Exhibit 58, Permit 46,714, No 19, p. 3; Hearing Transcript, Vol. VIII, Boese p. 2102, ll. 12-18.) Each of the 30 permits contain a similar condition with the elevation corresponding to the 1993 level. (Hearing Transcript, Vol. VIII, Boese p. 2103, ll. 5-14.)

128. The City had determined, prior to engaging Burns & McDonnell for the current Proposal to modify the Minimum Index Levels that they wanted to lower the

minimum index levels. (Hearing Transcript Vol. V, McCormick, p. 1194-1195, ll. 24-25, 1-3.) The desire to lower the minimum index wells existed prior to the 1 percent drought reconstruction based on the operation of the wells over previous years, physical data measurements and estimated water levels. (Hearing Transcript Vol. V, McCormick, p. 1195, ll. 20-23.) Burns and McDonnell was aware of the Minimum Index Levels might not be adequate during the ASR Phase II work and implementation. (Hearing Transcript Vol. V, McCormick, p. 1197, ll. 1-5.)

129. Approval of application File No. 46,627 in ASR Phase II allows the City to appropriate water for Artificial Recharge in the basin storage area previously identified in Phase I of the ASR project. The Phase I Findings and Order identifies the basin storage area in attachment 2, the highest and lowest index water elevations for each cell as defined in attachment 4 will define the vertical extent, and estimated it to be 200,000 acre-feet. (*See* Phase I Initial Order, Approval of Application and Permits to Proceed, Conclusions 11 and 12.)

130. The lowered minimum index levels in the Proposal expands the basin storage area by increasing the defined vertical extent of the basin storage area.

Reliability of Remaining Saturated Thickness

131. The City's analysis of the 1 percent drought scenario doesn't require going down to the proposed minimum index levels. The proposed minimum index levels are lower than what is in the model because the contingency was added after the drought simulation and modeled results. (Hearing Transcript, Vol. X, Romero, p. 2671, ll. 14-21.)

132. DWR finds the lowered minimum index levels reasonable because the change is "not that significant compared to the practical saturated thickness." (Hearing

Transcript Vol. VI, Letourneau, p. 1531. ll. 12-25.) The Proposal reflects only average saturated thickness across an index cell and the DWR did not look at individual well logs to determine practical saturated thickness. (Hearing Transcript Vol. V, Letourneau, p. 1405. ll. 16-20.)

133. When calculating practical saturated thickness you generally exclude the clay layers. (Hearing Transcript Vol. VI, Letourneau, p. 1537. ll. 12-20.) For example, Proposal Table 2-11 reflects a remaining aquifer saturated thickness of 131 feet for Index Cell 1. The well log for the City's monitoring well in index cell 1 reflects a practical saturated thickness of approximately 30 feet. (Hearing Transcript Vol. VI, Letourneau, pp. 1555-1556, ll. 7-2; District Exhibit 80.)

Impact of lowering aquifer to proposed, lower minimum index levels.

134. The City's ASR permits currently do not allow the recovery of recharge credits below the current minimum index levels. (Hearing Transcript, Vol. VIII, Boese p. 2103, ll. 5-14.) Lowering the minimum index levels is a fundamental modification to the ASR permits. (Hearing Transcript Vol. VII, Letourneau, p. 1687, ll. 7-11.)

135. The City's Groundwater modeling results for the 1% drought simulation show the City would be able to withdraw approximately 14,900 acre-feet of water as recharge credits with the existing minimum index levels. (District's Exhibit 68, Romero Expert Report Fig. 3; Hearing Transcript, Vol. IX, Romero, p. 2496, ll. 8-25.) Lowering the minimum index levels, as proposed by the City, which includes an average of 10 foot contingency, would enable the City to divert an additional diversion of 79,500 acre-feet of water. (Hearing Transcript, Vol. IX, Romero, p. 2503-2504, ll. 23-25, 1-5.) If approved,

the lowered minimum index levels would allow the City a new diversion of 79,500 acre-feet. (Hearing Transcript, Vol. IX, Romero, p. 2501-2502, ll. 17-25, 1-4.)

136. The increased volume the City would be able to withdraw, resulting from the lowered index levels represents a new appropriation for the City to take credits they are not currently permitted to take. (Hearing Transcript, Vol. IX, Romero, p. 2577, ll. 1-12.)

137. New appropriations in GMD2 are subject to safe yield requirements (K.A.R. 5-22-7). Safe yield analysis is based on sustainable levels in the aquifer and rather than a percentage of saturated thickness or water level. If we used average water use rather than authorized quantity and recharge rate for a sustainability assessment and safe yield analysis we would approve more permits across the basin storage area. (Hearing Transcript Vol. IX, Boese, pp. 2382-2384, ll. 7-6.)

Reasonableness of the added contingency.

138. The 10 foot contingency was added to the modeled minimum drought elevations to determine the proposed minimum index levels. (Hearing Transcript Vol. III, Clement, p. 739, ll. 16-19; *id* at p. 796, ll. 18-20.)

139. The City did not provide a scientific justification for the proposed 10 foot contingencies. (Hearing Transcript Vol IX., Romero, p. 2458, ll. 11-18.)

140. The 10 foot contingency is described as a safety net to allow flexibility between the proposed conditions as respected to the model projected levels and a buffer for the redistribution of the City's pumping between Index Cells (Hearing Transcript Vol, III, Clement pp. 792-793, ll. 11-9; *id.* p. 795, ll. 15-21; *id*. p. 796, ll. 5-18). The 10 foot contingency is a safety net for things the City did not think about. (*Id.* p. 739, ll. 6-19; *Id.*

p. 796, ll. 21-23.) Finally, the contingency is described as a window of error to operate within. (Hearing Transcript Vol. VI, Letourneau, p. 1468, ll. 8-18.)

141. In the context of a drought model using the January 2011 levels bracketing or having a plus or minus water level elevation was considered. By changing course to use the lower 1998 levels such a large contingency is not needed. (Hearing Transcript, Vol. VIII, Boese pp. 2150-2151, ll. 23-25.)

142. The simulated drought results from the City's proposal are above the existing minimum index levels in many cases (Hearing Transcript Vol. III, Clement, p. 739, ll. 6-11; City Exhibit 1 Table 2-10 and Proposal, Hydrographs Attachment I; Hearing Transcript, Vol. VIII, Boese p. 2152, ll. 3-12.)

143. The City's simulated drought results show 17 of the 38 index cells (44.74%) would drop below the current Minimum Index Levels in the simulated drought. The average drop across the 17 cells going below the current minimum index levels is 4.9 feet. In the 21 cells where the drought model elevations do not drop to the current ASR minimum index levels there is an average 3.9 feet aquifer space remaining before reaching those levels. (City Exhibit 1, Table 2-10 and Proposal, Hydrographs Attachment I; Hearing Transcript Vol. III, Clement, p. 788, ll. 15-24; *id.* p. 790, ll. 12-23.) For example, in Index cell 9 the actual difference is less than 1 foot and the added contingency is 10 feet. (*See* City Ex. 1 p. 2-24, Table 2-10.)

144. A model can be used to solve for a water level contingency by looking at the model calibration to see the difference between observed and simulated heads and base the contingency on the difference between what the model shows and what is actually happening. (Hearing Transcript Vol. IX., Romero, p. 2460, ll. 5-19.)

145. The contingency allows the City flexibility to redistribute pumping around the wellfield. The City did not model the impact of such a redistribution. (Hearing Transcript Vol. III, Clement, p. 793, ll. 2-7.) Redistribution of city pumping allows increased pumping at stronger pumping wells so certain wells will pump more recharge credits than others. This could also occur when a well is not working properly and pumping is switched to another well. (Hearing Transcript Vol. III, Clement p. 791-792, ll. 20-15.). Redistribution of pumping could alter the impact of proposed changes.

V. Reasonableness and Public Interest Factors

Water Quality & Chloride Migration

146. DWR assessed the Proposal's reasonableness by relying upon the City's simulation showing the aquifer is 80% full or has 80% of the saturated thickness remaining at the end of an eight year drought. (Hearing Transcript Vol. VII, Letourneau, p. 1797, ll. 1-7.)

147. ASR Phase I and Phase II were both subject to Kansas Department of Health and Environment (KDHE) approval. No such KDHE approval has been sought for the City's current proposal modify the ASR program. (Hearing Transcript Vol. VIII, Letourneau, pp. 1997-1998, ll. 9-3.)

148. The City did not provide evidence on whether the proposal would be good for the aquifer, impact water quality or impact minimum desirable streamflow. (Hearing Transcript Vol. III, Henry pp. 595-596, ll. 24-11; Id. Vol. IV, McCormick, p. 1109, ll. 5-12.)

149. There is high chloride along the Arkansas River and in the area of Burrton, it's generally west and southwest of the City's well field area. As the City wells pump

more water or lower water levels, it tends to induce chloride migration from those areas. (Hearing Transcript, Vol. X, Romero, p. 2558, ll. 1-6.)

150. The potential danger of chloride migration resulting from the City's proposed modifications has not been quantified or explored. (Hearing Transcript, Vol. X, Romero, p. 2551, 2-7.) Chloride migration could degrade water quality. (Id. p. 2617, ll. 9-10.). Pumping the aquifer to levels below historical levels would certainly accelerate chloride movement towards the pumping source. (Hearing Transcript, Vol XII, Austin p. 3204, ll. 1-3; *See also* Intervenors; Ex. 2, Austin Expert Report.)

151. The City did not study whether or not lowering the minimum index levels would impact migration of the chloride plume. (Hearing Transcript Vol. III, Henry, p. 592, ll. 10-18.) Withdrawing 120,000 acre-feet of water through existing recharge and recovery well permits has the potential to adversely impact water quality. (Hearing Transcript Vol. VII, Letourneau, p. 1701, ll. 1-5.)

152. The quality and health of the aquifer is in the public interest and the impact lowered water levels could have on chloride movement is a concern. (Hearing Transcript, Vol. VIII, Boese p. 2185-86.)

153. Neither the Proposal nor proposed permit conditions contemplate actions to remedy potential chloride contamination for other water users in the Equus Beds. (Hearing Transcript Vol, VII, Letourneau, pp. 1830 – 1831, ll. 25-7.)

154. The USGS prepared a preliminary study of chloride transport indicating the potential for chloride migration from the Burrton area and the Arkansas River. The report simulates the 250 milligram per liter chloride concentration, which is a secondary standard in drinking water standards, in multiple scenarios. In the double Wichita pumping scenario

the chloride concentration contours reach Index Cells 30, 31, 32 and approach cells 33 and 34. Intervenors and other water users have wells in those index cells. (District Exhibit 44, USGS Open File Report 2014-1162 p. 57; District Ex. 68 Romero Expert Report Fig. 8; Hearing Transcript, Vol. X, Romero, p. 2618, ll. 1-6.)

155. Water contaminated with chloride has previously caused salt burn damaging crops near the Arkansas River. (Hearing Transcript Vol. XII, Basore, p. 3248, ll. 24-25.) When the water gets over 300-350 parts salinity it is almost unusable for irrigation and could damage soils destroying the ability to farm on the land. (*Id.* at p. 3250, ll. 15-24.)

156. High chloride can make the use of water rights uneconomical; diminishing the value of a water right. (Hearing Transcript Vol. XII, Basore, p. 3250-3251, ll. 25, 1-11.)

157. Digging a deeper well does not address water quality issues such as chloride, especially for water users along the Arkansas River who have already installed wells as deep as possible. (Hearing Transcript Vol. XII, Basore, p. 3309, ll. 11-15.)

Other Water Quality Concerns:

158. The Big Arkansas River between Yoder and Maize Road is a losing reach, with the water being absorbed into the bank and into the Equus Beds Aquifer that goes by. Anything you do to increase the gradient into a well field is going to make it even worse. (Hearing Transcript Vol. XII, Basore, p. 3251, ll. 12-22.)

159. The Arkansas River between Yoder and Maize road has been identified on the Kansas Department of Health and Environment list of impaired waters for chloride,

phosphorus, selenium, and biology.[4] (Hearing Transcript Vol. XII, Basore, pp. 3251-3252, ll. 12-8.) Drawing the Equus Beds down below the current minimum index levels increases concern with the selenium and phosphorous contaminating the water supply. (*Id*. at p. 3300, ll. 1-19.)

160. The pumping allowed by City's proposal would accelerate the movement of chloride and other contaminants in the aquifer. The City's model has the ability to look at the movement of contaminants; however, the City did not address the movement of chloride or contaminants as a result of the proposed changes in the proposal or modeling data produced. (Hearing Transcript, Vol. XII, Austin, p. 3205, ll. 5-23.)

161. Lowering the minimum index level has the potential of degrading water quality. (Hearing Transcript, Vol. X, Romero, p. 2559-2560, ll. 22-1.) Diverting additional groundwater as AMCs has the potential to degrade water quality. The City's proposal does not address the impact of diverting AMCs from the well field area. (*Id.* p. 2561, ll. 13-21.)

162. There is arsenic in the clay layers of the Equus Beds aquifer (Hearing Transcript, Vol. XII, Austin p. 3207, ll. 1-4.) The City's proposal makes no reference to arsenic or whether it would be released from the clay layers if the aquifer is drawn down as allowed by the City's proposal. (*Id.* p. 3208, ll. 17-18.)

163. The only thing worse than bad water quality is no water at all. (Hearing Transcript Vol. XII, Basore, p. 3253, ll. 2-11.)

Minimum Desirable Stream Flow

164. The Little Arkansas and the Big Arkansas are hydraulically connected to the aquifer, when the groundwater levels drop, they reduce the flow in the river. Hearing

[4] KDHE 303(d) list of impaired waters pp 18 – 19. 11030010 Gar Peace https://www.kdheks.gov/tmdl/2020/2020_303_d_List_Approved.pdf

Transcript, Vol VIII, Boese p. 2188, ll. 4-8). Groundwater and surface water are an integrated, connected system. Groundwater pumping can impact surface water flow and it can be modeled and accounted for. (Hearing Transcript, Vol. XII, Austin p. 3100, ll. 9-21.)

165. Evaluation of a groundwater diversion, especially close to the river or a stream, must consider what amount the groundwater diversion is actually withdrawing water from the stream. (Hearing Transcript, Vol. XII, Austin p. 3101-3102, ll. 23-3.) Minimum Desirable Streamflow ("MDS") is one of the standards the Division of Water Resources assesses in approving appropriations and changes. (Hearing Transcript, Vol. XII, Austin pp. 3191-3192, ll. 13-8.)

166. The City pumping ASR recharge credits in the simulated 1% drought initially produces most of the water from the aquifer; however, as pumping continues the cone of depression from groundwater pumping induces (depletes) flow from the rivers. Stream depletion continues to occur for years after groundwater pumping ceases. This lagged depletion response occurs because, even though the pumping has stopped, the stream depletion continues to fill in the cone of depression that was caused when the well was pumping." (District Exhibit 68, Romero Expert Report p. 3; Hearing Transcript, Vol. X, Romero, pp. 2551-2552, ll. 23-12.)

167. The hydrologic system response to the City pumping its 40,000 acre-feet during the simulated 8 year drought results in 146,300 acre-feet of river depletion over the 10 year simulation period. (District Exhibit 68, Romero Expert report Fig. 2.)

168. The current Minimum Index Levels tend to address the issue of excessive groundwater diversions in the form of recharge credits impacting MDS. (Hearing Transcript, Vol. XII, Austin p. 3211, ll. 15-22.)

169. In 2011 and 2012 MDS was not achieved about half the time. Lowering aquifer levels to the proposed minimum index level, will result in more days where MDS is not achieved. (Hearing Transcript, Vol. IX, Romero, p. 2514, ll. 14-25.)

170. The lowered index levels are equivalent to a new diversion. Currently the City is not permitted to access the water; but if the proposal is approved, the City will be able to divert the additional water. (Hearing Transcript, Vol. IX, Romero, p. 2515, ll. 5-8; District Ex. 68 Romero Report Fig. 5.) In the simulated drought, the current minimum index levels allow 14,900 acre-feet in credits to be pumped from the Equus Beds. The lowered minimum index levels allow the City to pump 79,500 acre-feet as credits, of this 43,800 acre-feet is streamflow depletion. (Hearing Transcript, Vol. IX, Romero, p. 2496, ll. 16-25; p. 2499, ll. 14-23; *Id.* p. 2515, ll. 15-25.)

171. The hydrologic effects of the City's proposal on rivers are not addressed in any of the City's reports, attachments or modeling. (Hearing Transcript, Vol. IX, Romero, p. 2469, ll. 14-18.) The City did not address the how lowering the minimum index level might affect MDS. (*Id.* Vol. X, Romero, p. 2560, ll. 15-21; *Id.* Vol. V, McCormick, p. 1218, ll. 24-25.) Allowing credit recovery at lowered minimum index levels will negatively impact MDS. (*Id.* Vol. IX, Romero, p. 2517, ll. 10-15; *id.* p. 2560, ll. 15-18; *Id.* Vol. VIII, Boese p. 2188, ll. 15-23.)

172. The model shows during the City's simulated drought period, rivers are depleted 146,300 acre-feet in addition to the aquifer storage depletion as a result of the City

pumping 40,000 acre-feet annually. (Hearing Transcript, Vol. IX, Romero, p. 2493, ll. 17-23; District Ex. 68, Romero Expert Report, Fig. 2.) Withdrawing recharge credits further increases river depletion. After eight (8) years the rivers lose about 10 cfs. of water. (Hearing Transcript, Vol. IX, Romero, pp. 2508-2509, ll. 16-4; District Ex. 68, Romero Expert Report, Fig. 3 & 4.)

173. DWR, KGS and other state water organizations look at achievement of MDS retrospectively in 10 year increments. For the period 1969 to 1978 MDS was achieved 98.3 percent of the time at the Valley Center gage. For the period of 2009 to 2018 MDS achievement was 83.8 percent. During the simulated drought designed by the City, MDS achievement is estimated to be 63.4 percent. (Hearing Transcript, Vol. XII, Austin pp. 3121-3122; Intervenors' Ex. 3 Achievement of MDS.)

174. Applying the approximate 10 cfs. streamflow depletion identified in the Balleau report with the known 63% MDS achievement during years 2011 and 2012 results in MDS achievement substantially less than 63% during the simulated drought with the changes proposed by the City. (Hearing Transcript, Vol. XII, Austin p. 3123, ll. 6-10; *id.* p. 3198, ll. 10-25; Intervenor's Ex. 3; District's Ex. 68, Romero Report p. 7.)

175. Lowering the minimum index levels and pumping the aquifer below historic low levels would affect MDS greater than what has historically happened. The base flow would be affected and if it is affected enough, MDS would be hard to achieve at the lowered aquifer levels. (Hearing Transcript, Vol. XII, Austin p. 3189, ll. 7-15.)

176. The City's Proposal and modeling does not consider whether the proposed modifications will impact MDS. (Hearing Transcript, Vol. XII, Austin pp. 3119-3120, ll. 23-20.) The models did not actually address the impact of lowering the minimum index

levels on MDS because the proposed Minimum Index Levels were established by contingency, not modeling. (Hearing Transcript, Vol. XII, Austin pp. 3189-3190, ll. 21-12). Withdrawing 120,000 acre-feet of recharge credits has the potential to impact MDS. (Hearing Transcript Vol. VII, Letourneau, p. 1701, ll. 8-12.)

177. DWR did not perform any independent calculations, modeling or research to understand whether MDS would be protected if the proposed modifications are approved. (Hearing Transcript Vol. VII, Letourneau, pp. 1680-1681, ll. 3-17.)

Well Spacing & Previous Spacing Waivers.

178. Equus Beds well spacing requirements provide minimum spacing of all nondomestic wells to be 1,320 feet from nondomestic wells, groundwater pits and baseflow notes and 660 feet from all domestic wells. K.A.R. 5-22-2(a).

179. There are irrigation and stock watering wells within 1,320 feet of the Wichita ASR wells proposed to be modified with the City's proposal. (Hearing Transcript Vol. XI, Boese, pp. 2957-2958, ll. 22-12.)

180. If the domestic well owner has granted written permission to reduce the spacing interval the minimum spacing interval may be waived. K.A.R. 5-22-2(e)(4).

181. An applicant can ask the GMD2 Board of Directors for an exception if the proposed well does not meet the spacing requirements of K.A.R. 5-22-2. The District Board can then make a recommendation to the Division of Water Resources for an exception. (Hearing Transcript, Vol. VIII, Boese p. 2155, ll. 2-10.)

182. Prior to Phase II approval, the City sent letters to domestic well owners located with 660 feet of certain ASR Phase II applications asking well owners to sign a consent form allowing a waiver of the K.A.R. 5-22-2 spacing requirements. The June 2010

letters include several statements including: “Withdrawals will not be permitted if water levels are below the 1993 base line established by the ASR permit.” (Hearing Transcript Vol. V, Letourneau, p. 1307, ll. 19-21.) “In addition to the protections stated within the Consent Form, the City has also entered into a Memorandum of Understanding with GMD2 that more rigorously protects the interest of domestic well owners.” “The City feels that the ASR project is mutually beneficial to the City and to property owners in the Equus Beds. It will help restore and preserve water levels in the Equus Beds, and also provide protection from salt water contamination.” The letter does not discuss ASR as a source of water supply for the City during times of extreme drought. (District Ex. 57 June 24, 2010 Letter from City to domestic well owners.) The City also wrote GMD2 seeking an exemption from well spacing requirements stating “whereas ASR water rights may be utilized only when water levels exceed the level observed in 1993, and whereas without the exemption on well spacing, the extensive number of existing domestic and non-domestic wells in the project area, the City requests that ASR wells be determined to be exempt from well spacing requirements.” (District Ex. 53.)

183. The Phase II MOU between the City and District pertains to the 30 Aquifer Storage and Recovery well permits the City wants to modify and specifically addresses spacing waivers. “Application of current well spacing regulations under K.A.R. 5-22-2 to applications for new permits or for changes in existing water rights create problems in obtaining GMD2 and DWR approval. The City and GMD2 believe that the well spacing regulations should be waived due to the unique nature of the recharge and recovery wells and the benefits to be derived from the operation of the project.” (District Ex. 27, Phase II MOU.)

184. The Phase II MOU also states:

> "GMD2 and the City further agree as follows: As to any water permit applications filed by the City which in all other respects comply with the regulations of GMD2, and for which the proposed wells are to be used for the purposes of both aquifer recharge as defined by regulation and withdrawal of water for an authorized use, GMD2 agrees to recommend that such proposed applications be granted a waiver of the applicable spacing requirements. A petition for waiver of the well spacing requirement shall be submitted to GMD2 and shall be granted by GMD2 upon a finding that the conditions set out above do exist and that the granting of the waiver will not unreasonably impair the public interest." (District Ex. 27, Phase II MOU, p. 2; Hearing Transcript, Vol. VIII, Boese p. 2156-2157, ll. 11-3.)

185. The GMD2 Board recommended a waiver of spacing regulations for certain ASR applications under circumstances of the Phase II applications and MOU including the Minimum Index Levels. (District Ex. 53 David Warren letter, Oct. 10, 2008; District Ex. 2, Pope Report, p. 3; Hearing Transcript, Vol. VIII, Boese p. 2156, ll. 11-20; *id.* p. 2158, ll. 6-8.)

Potential Impairment

186. It is the City's burden of proof to show the proposed modifications will not cause impairment. (Order to Modify Hearing and Schedule, Sept. 27, 2018; Pre-Hearing Conference Order, July 23, 2018.)

187. "When evaluating water right impairment, it is a matter of whether you can use it or not for its intended purposes." (Hearing Transcript, Vol. XII, Austin p. 3194, ll. 17-25.) The ability to use water appropriated for irrigation as the beneficial use in February but not in August during the irrigation season, when the cone of depression is at its peak is an impairment not reflected in annual water measurements. (Hearing Transcript, Vol. XII, Austin p. 3194, ll. 17-25.)

188. Potential impairment of other water users was a concern with previous ASR phases leading to the Phase I and Phase II MOUs and the permit approval orders and

conditions. These protections include a restriction from degrading the ambient groundwater in the basin storage area and drawing down the aquifer below the 1993 levels. (Hearing Transcript, Vol. VIII, Boese p. 2111, ll. 5-12.)

189. Burns & McDonnell performed calculations on the size of the cone of depression from the City's proposed pumping in Table 2-5. The Proposal reflects only water level maps and does not mention the cone of depression. (Hearing Transcript Vol. V, McCormick, pp. 1213-1214, ll. 15-20.)

190. A partial review of well data shows that 35 wells in the area have potential to lose their well water column if the aquifer levels drop to the proposed minimum index levels. (Hearing Transcript, Vol. IX, Romero, p. 2531, ll. 1-5.)

191. Wells that are projected to lose their water column as a result of the City's proposed withdrawals extend beyond 660 feet from City wells. (Hearing Transcript, Vol. X, Romero, p. 2545, ll. 17-20.)

192. There are multiple City wells and the drawdown from each well carries out further than 660 feet causing interference throughout the BSA. (Hearing Transcript, Vol. X, Romero, pp. 2609-2610, ll. 23-7; *id*. at p. 2611, ll. 1-4.)

193. Aquifer properties also impact the distance needed for well spacing. Some regulations consider aquifer properties in a particular area and decide well spacing based on the actual aquifer properties and drawdown that occurs. (Hearing Transcript, Vol. X, Romero, p. 2610, ll. 11-21.)

194. If impairment is defined in the sense of wells losing their water column, then lowering the aquifer to the proposed index levels would cause impairment. (Hearing Transcript, Vol. IX, Romero, pp. 2535-2536, ll. 16-5.)

Jurisdictional Facts

195. "K.S.A. 82a-708b provides the sole legal authority for making changes to any existing water right." (District Ex. 2, Pope Expert Report, p. 6.)

196. In Kansas, once a water right is acquired, other than minor corrections, the only three attributes of a water right that may be changed are: (1) authorized point of diversion, (2) authorized place of use, and (3) use made of the water. (K.S.A. 82a-708b; District Ex. 2, Pope Expert Report, p. 7; Hearing Transcript Vol. X, Pope, p. 2716, ll. 3-7.)

197. It is long standing practice that a water right cannot be expanded after it is created. (Hearing Transcript, Vol. VII, Letourneau, pp. 1657-1658, ll. 22-2; *id.* Vol. X, Pope, p. 2716, ll. 9-20.)

198. The maximum annual quantity authorized by a water right cannot be increased. (Hearing Transcript, Vol. X, Pope p. 2716, ll. 21-25.). The maximum instantaneous diversion rate of a water right cannot be increased. (Id. p. 2717, ll. 2-4.) The consumptive use of a water right cannot be increased. (*Id.* p. 2717, ll. 5-21; K.A.R. 5-5-3.)

199. The only way to increase an appropriation is to file a new water permit application. (Hearing Transcript, Vol. VIII, Boese p. 2168, ll. 23-25.) New water permits are not available in the over-appropriated Equus Beds Well Field area due to the current safe yield rules and regulations except for very minor exceptions. The City is aware of this restriction on anything other than recharge and recovery permits. (Hearing Transcript, Vol VII, Letourneau, p. 1673, ll.16-22, *id.* Vol. X, Pope p. 2727, ll. 10-20; *id.* Vol. VIII, Boese p. 2061, ll. 5-10.)

200. A water right owner may change the place of use, point of diversion or use by applying in writing to the chief engineer and demonstrating the proposed change is

reasonable and will not impair existing rights and meeting the other statutory requirements. (K.S.A. 82a-708b; Pope Expert Report, p. 6-7; Hearing Transcript, Vol. VIII, Boese p. 2167, ll. 17-19; *Id.* Boese pp. 2170-71, ll. 23-3.)

201. Changes or modifications to a water right cannot increase the consumptive use or increase the maximum annual quantity. (District Ex 2, Pope Expert Report, p 8). The appropriation doctrine does not allow a water right to be expanded. (Hearing Transcript Vol. X, Pope, p. 2716, ll. 8-20.)

202. The City did not submit a new or change application for the creation of AMCs or lowering the minimum index levels. (*Id.* Vol. V, Letourneau, p. 1255, ll. 3-17; *id.* Vol. VII, p. 1658, ll. 3-7.)

203. Various statutes allow for modifications to existing water rights to make administrative corrections or supply missing information such as to correction location, supply missing information to pending applications, changes needed due to water conservation plan, certain reductions to water right, flowmeter requirements, and typos or omissions. (Hearing Transcript Vol. XI, Boese, pp. 2862-2882; District Ex. 2, Pope Expert Report, p. 8.) The fundamental parts of a water right cannot be changed with a mere request. The method of obtaining Recharge Credits and specification of when recharge credits can be used are fundamental aspects to the ASR water permits. (Hearing Transcript, Vol. VIII, Boese p. 2175, ll. 8-13.)

VI. Impact to other water users

204. "The Wichita well field is extremely over-appropriated." (Hearing Transcript, Vol. VIII, Boese p. 2205, ll. 14-15.) In an over-appropriated aquifer, all of the

water available according to safe yield, has already been dedicated to other water users. (*Id.* p. 2257-2258; *Id.* Vol. XI, p. 2965, ll. 4-8, *Id.* p. 2966, ll. 14-25.)

205. The individual Intervenors are land owners and possess water rights in the Basin Storage Area of the Equus Beds. Individual Intervenors also depend on the Equus Beds for domestic uses. (Hearing Transcript Vol. XII, Basore, p. 3233, ll. 8-18; District Exhibits 16 & 17 Intervenor Interrogatory Responses to City Interrogatory No 1; Administrative notice of Permit Information.)

206. Individual Intervenors do not have other sources of water supply to rely on. (Hearing Transcript Vol. XII, Basore, p. 3237, ll. 10-14.)

207. New appropriations to applicants in the well field area have been denied due to Safe Yield since 1980. (Public Written Comments, Mr. Floyd Holle December 13, 2019, Letter dated July 15, 1980.) The only way to dedicate water to anybody else is by adding to the resource, by injecting treated source water into the aquifer, that then becomes additional supply available for appropriation. (Hearing Transcript, Vol. IX, Boese p. 2408, ll. 4-10.)

208. Not pumping water from the aquifer does not add to the water supply. (Hearing Transcript, Vol. IX, Boese pp. 2408-2049, ll. 14-2.)

209. Aquifer Maintenance Credits do not involve physically recharging water to the aquifer. AMCs are not water placed in storage by the City. In withdrawing AMCs from the aquifer, the City would be taking water other water right holders are entitled to. (Hearing Transcript, Vol. X, Pope pp. 2726-2727, ll. 20-7.)

210. Approving AMCs will allow the City to divert native water which other water right owners have a priority to divert. (District Ex. 2, Pope Expert Report, p 9.)

211. The Basin Storage Area currently means the portion of the aquifer used for aquifer storage that has defined horizontal boundaries and is delimited by a maximum index level and a minimum index level. K.A.R. 5-1-1(k) as amended April 29, 2016. During review and approval of Phase I and Phase II, prior to the 2016 Amendment, as printed in the Kansas Administrative Regulations for 2009, K.A.R. 5-1-1(k) defined the Basin Storage Area was the portion of the aquifer's unsaturated zone used for aquifer storage that has defined horizontal boundaries and is delimited by the highest and lowest water level elevations. (Hearing Transcript Vol. VIII, Letourneau, p. 1986, ll. 6-11; *Id.* Vol. X, Pope, pp. 2778-2779, ll. 23-21; Intervenors Ex. 23, K.A.R. 5-1-1 adoption cert and economic impact statement; Phase I MOU Attach. A.) K.A.R.5-22-1(c) continues to define aquifer storage as "the act of storing water in the unsaturated portion of an aquifer by artificial recharge for subsequent diversion and beneficial use." (Hearing Transcript Vol. VII, Letourneau, p. 1731, ll. 13-21.)

212. AMCs seek to perform aquifer storage without putting water into an unsaturated portion of the aquifer. (Hearing Transcript Vol. VII, Letourneau, p. 1733, ll. 13-17.) Water can only be stored where there is space available. The aquifer is a little like a cup and adding more water to a full cup causes the water to go over the rim, the more you continue to fill a full aquifer the loss rate increases, more recharge credits are lost to the stream as well as water appropriated to other water users. (Hearing Transcript Vol. XII, Austin, pp. 3166-3167, ll. 23-4.)

213. Lowering the minimum index levels has the effect of expanding the Basin Storage Area. Water in the Equus Beds below the 1993 levels is Equus Beds groundwater,

or naturally occurring groundwater. (Hearing Transcript, Vol. VII, Letourneau, pp. 1826-1827, ll. 25-3, *id.* Vol. VIII, Boese p. 2095, ll. 20-22.)

214. The chief engineer previously concluded that if the City could not withdraw credits below the minimum index level (1993 levels) the public interest in not diverting the Equus Beds groundwater below that would be protected. (Hearing Transcript, Vol. VIII, Boese p. 2095, ll. 7-13.)

215. AMCs will allow a substantially larger quantity of groundwater to be withdrawn from the EBWF area during a drought when the demand for and value of water are at the highest points. (District Ex. 2, Pope Expert Report, p. 10.)

216. AMCs do not store water in the unsaturated portion of the aquifer. Landowners did not consent and have not been offered compensation to store water in an expanded area under the land they own. (Hearing Transcript Vol. XIII, Carmichael, p. 3339, ll. 5-8.) The City has not offered to buy or compensate water right holders for any water rights or the displacement of Equus Beds water in order to store AMCs. (Hearing Transcript Vol. XII, Basore, p. 3310, ll. 19-20.)

217. Water users are concerned water in the aquifer will become untenable for use due to water quality including contaminants such as chloride, selenium, phosphorous and others (Hearing Transcript Vol. XII, Basore, p. 3275, ll. 21-23; *Id.* at p. 3300, ll. 6-19.)

218. An inadequate supply of water, especially during drought conditions, is likely to reduce the yield of crops after growers have invested in seed, planting, fertilizer, and other crop inputs. (Hearing Transcript Vol. XII, Basore, p. 3241, ll. 5-8).

219. Chloride in the water causes damage to crops, such as salt burn, and damage to irrigation systems, in some cases creating the need to line galvanized pipe with PVC to

deal with chloride issues. (Hearing Transcript Vol. XIII, Carmichael, p. 3330, ll. 15-21; Hearing Transcript Vol. XII, Basore, p. 3248, ll. 24-25.)

220. One Intervenor described the City's proposal as "I feel like I'm sitting out there almost staring down the barrel of a gun not knowing what it means for me and my property and my water rights and my ability to use water." (Hearing Transcript Vol. XII, Basore, p. 3273, ll. 6-9.) Another described losing access to quality water at his domestic well as life altering. (Hearing Transcript Vol. XIII, Carmichael, p. 3325, l. 7.)

221. The permit conditions proposed by DWR only consider impairment to domestic well owners within 660 feet of an ASR well and do not address other water right holders or those further than 660 feet away. The City and DWR referred to the impairment process as the available remedy. Neither the City nor DWR presented a cure for the injury caused while waiting for the City to address domestic well issues or during the impairment process. (City Ex. 1, Proposal, section 3.4; DWR Ex. 1 Draft Findings Letter June 1, 2018.)

222. The remedy for impairment depends on the injury caused. A new well will not address water quality impairment and deepening a well might not address quantity issues due to clay layers found in the aquifer. (Hearing Transcript Vol. VI, Letourneau, pp.1591-1592, ll. 22-14.). It can take a season for DWR to make a determination on whether groundwater pumping is causing impairment. (Hearing Transcript Vol. VII, Letourneau, p. 1819, ll. 6-10.)

223. Water users make considerable investments based on water appropriations. Ten years ago an irrigator would have invested $25,000 for a new irrigation well (Hearing Transcript Vol. XII, Basore, p. 3247, ll. 1-8.) The cost of putting in a new well exceeds

$100 a foot to drill the well and that does not include pumping equipment. (Hearing Transcript Vol. XIII, Carmichael, p. 3329, ll. 7-9.)

224. A new irrigation project starts at $80,000 - $100,000 depending on the system set up which does not include the well, piping or electricity. (Hearing Transcript Vol. XIII, Carmichael, p. 3330, ll. 3-6.)

225. The cost for modifications such as adding a PVC lining is $30,000 - $60,000 depending on the length of a system. (Hearing Transcript Vol. XIII, Carmichael, p. 3362, ll. 5-6.)

226. In index cell 31, chloride has already impacted irrigation systems leading water right holder to line with PVC to help minimize the damage caused by chloride. (Hearing Transcript Vol. XIII, Carp, p. 3382, ll. 1-5.)

227. No chloride migration modeling was performed in the development of the City's proposal. (Hearing Transcript Vol. V, McCormick, p. 1216, l. 23; *id.* p. 1217, ll. 21-25; *id.* p. 1218, l. 5.)

228. The value of a water right is difficult to quantify and impacts both the value of land as an asset but also the future income potential from that land. One method is to compare the value of dry land and irrigated land. Without the availability of economical water growers would have to revert back to dryland methods. Irrigated land would lose $^1/_3$ to ½ of its value if converted to dry land due to loss of a water right or loss of the ability to withdraw quality water under a water right. Land owners would also lose future productivity or income generated by being limited to dryland crops or no crops (Hearing Transcript Vol. XII, Basore, p. 3312, ll. 2-20; *Id.* at p. 3314, l. 4; *id.* p. 3315, ll. 2-15; *id*. at p. 3251, ll. 1-11; Hearing Transcript Vol. XIII, Carp, p. 3408, ll. 1-13.)

229. Demand and how badly a person, city or business needs the water right are significant factors in the value of a water right. (Hearing Transcript Vol. XIII, Carp, p. 3408, ll. 1-13.) Timing is everything, for example during a hurricane people sell water for extraordinary prices due to surge in demand at a critical time, similar to the demand for water during a 1% drought scenario. (Hearing Transcript Vol. XIII, Carp, p. 3409, ll. 1-14). Water is our lifeblood, when it comes to water it has to happen overnight, without water a few hours becomes a big deal. (Hearing Transcript Vol. XIII, Carmichael, p. 3326, ll. 9-17.).

230. Home owners and residents face both property damage and health risks from high chloride levels in the water. (Hearing Transcript Vol. XIII, Carmichael, p. 3336, ll. 11-17.) Irrigators and land owners fear loss of access to quality water, loss of land value, diminished income from less productive land, diminished income due to less productive dryland crops, increased costs to pump at a greater depth and other costs associated with lowering the minimum index levels and water quality risks associated with diversions allowed by the City's proposal. (Hearing Transcript Vol. XII, Basore, p. 3316, ll. 15-16.)

231. The potential harms caused by withdrawing water from the Equus Beds as contemplated by the City's Proposal would impact everyone in the area and not just water users. Local communities and businesses, including Co-ops, agricultural services, hardware stores, implement dealers, grocery stores, restaurants, and so on would all be impacted by the lack of quality water, lowered crop productivity and or decrease in property values. (Hearing Transcript Vol. XII, Basore, pp. 3315-3317, ll. 24-16.)

Aquifer Recovery

232. We do not know how long it will take the aquifer and rivers to recover from a 1% drought. (Hearing Transcript, Vol. X, Romero, pp. 2643, ll. 14-20.) It is estimated it would take tens of years for the aquifer to recover, but it has not been quantified. (Hearing Transcript, Vol. X, Romero, p. 2643, ll. 19-20.)

233. Stream depletion will continue even after area wells begin to recover. The depletion decreases in the aquifer because water levels are rising in the aquifer, at the expense of flow from the river. When you turn off the wells in the area of the City's wells, water levels begin to recover immediately, and they will continue to recover until you turn the wells back on. The river will continue to deplete to fill in that cone. (Hearing Transcript, Vol. X, Romero, pp. 2643-2644, ll. 25-8.)

VII. Model Concerns

234. The City's Proposal seeks the ability to accumulate and withdraw up to 120,000 acre-feet of recharge credits, subject only to individual permit requirements. The City's drought simulation and model is based on the inputs in Table 2-5 and not the maximum amount of credit withdrawal allowed. (City Ex. 1, Proposal p. 2-10, Hearing Transcript, Vol. IX, Romero, p. 2486, ll.12-23.)

235. The City worked with two separate models. The MODSIM-DSS model produced the water demands used in the Equus Beds Groundwater Model. (Hearing Transcript Vol. IV, Clement, p. 908, ll. 22-25.) The City developed a model based on *MODSIM*-DSS to simulate how the raw water demands should be distributed between Cheney Reservoir, Equus Beds Well Field and the ASR System during a 1% drought. (City Ex. 1, Proposal, p. 2-3.) Mr. Macey for the City altered the MODSIM model provided by

High Country Hydrology to adjust the proportion of water resources taken from the City's various water supply options. (Hearing Transcript Vol. III, Macey, p. 628, ll.1-16.)

236. The MODSIM work performed by Mr. Macey resulted in the future raw demand assessment in section 2.2 of the Proposal (*Id.* pp. 630-631, ll. 15-4.) Mr. Macey testified to the 110% full condition at Cheney reflected in Table 2-3 of the Proposal is a typo and should be 100% (*Id.* p. 635, ll. 10-18.) Figure 2 of the Proposal shows a starting point of 167,000 acre-feet which is 100% rather than 110%. (*Id.* p. 638, ll. 2-9.)

237. The City and Burns & McDonnell used the USGS-based model (MODFLOW) to examine the change to the aquifer water levels based on a simulated drought with a 1 percent exceedance probability. The USGS developed the groundwater-flow model in 2009 as detailed in USGS SIR 2013-5042. This USGS Equus Beds Groundward Flow Model (EBGWM) was approved for accounting and tracking ASR credits. (City Ex. 1 Proposal p. 2-5–2-7.)

238. The City's MODSIM modeling was not reviewed. (Hearing Transcript, Vol. X, Romero, p. 2638, ll. 14-16.)

239. Per the USGS report, the EBGWM used by the City was discretized using a grid with cells measuring 400 ft by 400 ft. Model results were evaluated on a relatively large scale and cannot be used for detailed analyses such as simulating water-level drawdown near a single well. A grid with smaller cells would be needed for such detailed analysis. (City Ex. 1, Proposal, Attachment E; District Ex 46, USGS SIR 2013-5042 p. 72; Hearing Transcript, Vol. X, Romero, p. 2582-2583, ll. 20-25, 1-2; Hearing Transcript, Vol. IX, Romero, p. 2474, ll. 1-14.)

240. The model limitations do not prevent evaluating pumping wells in the 400 x 400 ft cell. A multi-node well package can be used with the City's model that actually will estimate the pumping water level in a well. (Hearing Transcript, Vol. X, Romero, pp. 2585-2586, ll. 21-4.)

241. The model generally reflects a static water level which is measured after recovery from pumping. Impairments to individual wells oftentimes is at the time of greatest pumping and those levels are not represented in the model. Any specific impact on wells adjacent or nearby and index well might be understated by the model and misleading as to the impact during maximum pumping time such as the simulated drought. (Hearing Transcript Vol. XIV, McCormick, p. 3512, ll. 11-19; Hearing Transcript Vol. XII, Austin, p. 3146, ll. 12-25.)

242. The model can show a potential of impairment based on changes in groundwater levels but does not show the information needed to understand potential for impairment during periods of active pumping. (Hearing Transcript Vol. XII, Austin, p. 3149, ll. 4-12.)

243. The USGS model used by the City assumes irrigation pumpage occurs in May through August but annual irrigation rates were calculated and used in the simulation. Looking at irrigation pumpage rates on an annual basis, when in actuality there is an irrigation season of 4-5 months, then the annual rate is half or a fourth of the actual peak rate of diversion and will have a markedly different impact on water right impairments of nearby wells. (Hearing Transcript, Vol. XII, Austin pp. 3192-3193, ll. 19-7.)

244. During irrigation operations, the cone of depression or draw down at the wells will be much deeper and reach out further than reflected with the annual rates used by the City in the simulation. (Hearing Transcript, Vol. XII, Austin p. 3193, ll. 11-23.)

245. The annual time stamp and annual irrigation rates used by the City fail to show what the maximum impairment might have been during the simulated drought. (Hearing Transcript, Vol XII, Austin pp. 3193-94, ll. 23-1.)

246. A more specific model based on peak discharge rates or pumping rates relative to specific wells would show impairment and how large the impairment may have been. (Hearing Transcript, Vol. XII, Austin p. 3195, ll. 6-11.)

1998 Starting Condition

247. City staff set certain parameters such as the aquifer starting levels in a model interface. The aquifer starting level was set at 1998 levels for purposes of operating the model to generate data for the City's Proposal. (Hearing Transcript Vol. III, Macey, pp. 698-699, ll. 18-11.)

248. The Proposal considers only modeling results using 1998 starting levels and does not reflect the results if a fuller or lower aquifer starting level were used. (Hearing Transcript Vol. III, Clement p. 723, ll. 13-14, Hearing Transcript, Vol. II, Akhbari, p. 387, ll. 21-23; id. at p. 393, ll. 13-16.) The City did not consider alternative starting conditions and relied only on the 1998 levels. (Hearing Transcript Vol. III, Macey, p. 699, ll. 1-11.) The 1998 levels represent the aquifer level necessary for the City to recharge approximately 30 million gallons per day. (Hearing Transcript Vol. III, Clement p. 752, ll. 15-19; Hearing Transcript Vol. II, Akbhari, pp. 437-438, ll. 21-13.)

249. 1998 ground water levels were pretty low. 2010 levels were a more representative average of the water levels in the well field. (Hearing Transcript, Vol. VIII, Boese p. 2119, ll. 2-16.)

250. The impact of the proposed modifications, simulated drought and resulting water levels are sensitive to the starting aquifer conditions or starting head. The City only presented a 1998 starting aquifer condition. Using an alternative, predevelopment starting condition translated to the resulting level being comparably higher (Hearing Transcript, Vol. X, Romero, p. 2665, ll. 12-22.)

251. Prior to submitting the Proposal the City was working with a January 2011 starting aquifer condition which represented a relatively full condition as compared to 1998. (Hearing Transcript, Vol. VIII, Boese p. 2130, ll. 3-8; *Id.* p. 2119, ll. 2-13.)

Average Condition Full vs. Practical Saturated Thickness

252. The City's proposal shows results in terms of saturated thickness or change in water elevations but fails to detail impact to area wells or other water users. (Hearing Transcript, Vol. IX, Romero, p. 2467, ll. 22-25.)

253. City Proposal Figures 10 and 11 show average aquifer condition percent full at the end of stress period 8 and at the modified minimum index levels for the two-by-two-mile-area averages for index cells. The average conditions by index cell are not site specific to individual wells, the saturated thickness, aquifer depth, amount of clay or sand and is at too broad of a scale to advise individuals regarding potential impact or impairment. Neither figure describes the effects to anything other than the index wells and do not show effects to other neighboring wells in the area. (Hearing Transcript, Vol. XI, Boese pp.

2970-2971, ll. 21-3; Hearing Transcript, Vol. IX, Romero, p. 2467, ll. 5-8; pp. 2471 - 2472, ll. 22-13; *Id.* at pp. 2579-2580, ll. 15-3.)

254. The full saturated thickness presented by the City includes clay layers. Clay is more of an aquitard. The saturated thickness presented by the City does not describe the detail of regions within the thickness where the aquifer would not be as productive, for example areas of clay rather than sand. The model does have a framework to consider layers of clay, silt, sand and gravel if hydraulic properties are set up in the model. (City Exhibit 1 Figure 11; Hearing Transcript, Vol. X, Romero, p. 2645, ll. 1-20; *id.* p. 2654, ll. 2-10.)

VIII. Permit Conditions Necessary

255. The City's Proposal does not report on the hydrologic impacts to rivers or area wells where aquifer drawdown would occur during the simulated drought. (Hearing Transcript, Vol. IX, Romero, p. 2467, ll. 5-8.) The City did not appear to analyze the change to the system that will occur from the proposed modifications. (Hearing Transcript, Vol. IX, Romero, pp. 2467-2468, ll. 25-1.)

256. Nothing in the City's Proposal requires, guarantees or provides any assurances the aquifer will be maintained full. (Hearing Transcript Vol. VII, Letourneau, p. 1704, ll. 3-6.)

257. The purported benefits of the proposal are predicated on the assumption that the City will not pump down the aquifer. (Hearing Transcript, Vol. XI, Boese p. 3051, ll. 14-18). Mr. Letourneau testified:

Q: Does DWR have an opinion on whether this AMC part of Wichita's proposal is a good idea or not?

A: Well, we feel it is because it is not requiring the City to create what I'll call the hole make it – to where physical recharge credits could be put into the aquifer." (Hearing Transcript Vol. V, Letourneau, pp. 1271-1272, ll. 21-7.)

258. Since the April 26, 2018 letter to GMD2 confirming the City's change in tactics to make space in the aquifer by pumping from the Equus Beds rather than Cheney, the City has repeatedly expressed its current intention and practice to "make space" or "pump a hole" in the aquifer to pump the aquifer down to at least the 1998 levels. (Correspondence – City to GMD2, Change in ASR Tactics April 26, 2018; District Exhibit 18, City's response to Interrogatories No 18.)

259. The Proposal, if approved, would allow the City to accumulate AMCs by diverting surface water directly to the City while simultaneously withdrawing water from the aquifer. (Hearing Transcript, Vol. XI, Boese pp. 3051-3052, ll. 24-4.)

260. The Proposal would allow the City to draw the aquifer down below the 1993 levels. The Proposal does not limit the City's ability to draw the aquifer down below the current 1993 Minimum Index Levels to times of extended drought. (Hearing Transcript, Vol. VIII, Tim Boese pp. 2177-78, ll. 15-2.)

IX. Speculative Need

261. The projected water demands for the simulated drought are based on projected needs in 2060. (Hearing Transcript Vol. V, Letourneau, p. 1363, ll.17-20; City Ex. 1, Proposal p. 2-2). K.A.R 5-22-14 provides the reasonable quantity of water for municipal use shall not exceed population for the 20th year after the application is filed. Were the City filing a new application the quantity would be limited by a 20-year projection. (Hearing Transcript Vol. V, Letourneau, p. 1365, ll. 4-19.)

262. The City wants to avoid stranded recharge credits should aquifer levels drop below the current minimum index levels also referred to as the 1993 levels. There is no restriction on the City withdrawing their recharge credits sooner rather than later should the City choose to do so. (Hearing Transcript Vol. VI, Letourneau, p.1431, ll. 2-16.) Stranded recharge credits are a hypothetical possibility, based on the City's discretion of withdrawing credits.

263. The City is seeking these changes for a drought need with a 1% exceedance probability of occurring. (Hearing Transcript Vol. V, Letourneau, pp. 1267-1268, ll. 22-3.) The 120,000 acre-feet cap is based on need for back-to-back 1% droughts. (Hearing Transcript, Vol. 1, Pajor, p. 269, ll. 12-14; *Id.* Vol. VI, Letourneau, p. 1489, ll. 3-18.)

INTERVENORS' PROPOSED CONCLUSIONS OF LAW

I. Aquifer Maintenance Credits compliance with KWAA and ASR Regulations

1. Water diverted from the Little Arkansas River, treated, and used directly by the City, as proposed with AMCs, is not a Recharge Credit nor is it the functional equivalent to a Recharge Credit.

2. Existing authorities, including the KWAA, do not include AMCs as a method of accumulating recharge credits. AMCs do not meet the requirements set forth in K.A.R. 5-12-1 *et al*. AMCs do not involve Artificial Storage and Recovery.

3. "Recharge Credit" means the quantity of water that is stored in the basin storage area and that is available for subsequent appropriation for beneficial use by the operator of the **aquifer storage and recovery system**. K.A.R. 5-1-1(mmm) *emphasis supplied*.

4. The Aquifer Storage and recovery permitting regulations in K.A.R. 5-12-1 allow water storage with (i) water stored with in an **aquifer storage and recovery system** (ii) stored under a permit to appropriate water for **artificial recharge** (iii) if the water appropriated is **source water**. In addition, ASR permitting must comply with regulations adopted by the Kansas department of health and environment. The regulations effective when the ASR program and permits were approved are critical to understanding the interconnectedness of decisions, definitions, exemptions, MOUs, and waivers involved in ultimately approving the ASR project.

5. An Aquifer Storage and Recovery System involves physical infrastructure that is "operated for artificial recharge, storage, and recovery of source water; and consists

of apparatus for diversion, treatment, recharge, storage, extraction and distribution." (K.A.R. 5-1-1(f); Phase II Findings and Order, Finding 6). As proposed, AMCs represent a credit for water not pumped or groundwater left in the Equus Beds. The method of accumulating AMCs does not include recharge or storage of the recharged water in the Equus Beds. An Aquifer Storage and Recovery System is not needed to leave water in the aquifer, water users leave water in the aquifer regularly. "Aquifer storage" means the act of storing water in an aquifer by artificial recharge for subsequent diversion and beneficial use. K.A.R. 5-1-1(e).

6. Recharge means the natural infiltration of surface water or rainfall into an aquifer from its catchment area. K.A.R. 5-1-1(lll). Artificial Recharge means the use of **source water** to artificially replenish the water supply in the aquifer. K.A.R. 5-1-1(g). Source Water "means water used for **artificial recharge** that meets the following conditions: (1) Is available for appropriation for beneficial use; (2) is above base-flow stage in the stream; (3) is not needed to satisfy minimum desirable streamflow requirements; and (4) will not degrade the ambient groundwater quality in the basin storage area." (K.A.R. 5-1-1(yyy)). Source Water for the permit modified under the Proposal is the Little Arkansas River flows diverted for Artificial Recharge pursuant to Application File No. 46,627.)

7. Artificial Recharge is absent from the AMC concept because the City is not replenishing or adding source water or any water to the aquifer to be stored in an aquifer storage and recovery system.

8. The City's permit to appropriate water for artificial recharge is File No. 46,627 which has dual beneficial uses: Artificial Recharge and Municipal Use. The City

seeks to accumulate AMCs by directly diverting surface water from the Little Arkansas River to town for immediate municipal use in the same manner as they have been doing for the past several years. By diverting the Little Arkansas River water directly for municipal use the City is not using source water to artificially replenish the water supply in the basin storage area because no water will be added to or infiltrate into the Equus Beds, be stored in the aquifer for subsequent use, nor made available for subsequent diversion and beneficial use under the City's Proposal. The proposed AMC process seeks simultaneous municipal and artificial recharge beneficial uses which is not permitted by File No. 46,627. Merely using the same ASR system of pipes to transport the water from the Little Arkansas River to the City does not create a Recharge Credit.

9. Diversion for immediate municipal use under File No. 46,627 is not Aquifer Storage, Artificial Recharge or an Aquifer storage and recovery system as defined in K.A.R. 5-1-1.

10. If approved, the water appropriated when recovering an Aquifer Maintenance Credit is Equus Beds Ground water and not Little Arkansas River flows that have been diverted, treated, recharged, stored and later extracted. The AMC concept lacks the requirements of recharge and storage for an Aquifer Storage and Recovery System. Accumulating Recharge Credits for water not pumped is not authorized by the Kansas Water Appropriation Act ("KWAA").

II. Passive Recharge - Credit for Water not Pumped

11. Passive recharge credits were previously considered by two former chief engineers during ASR Phase I and Phase II and both expressly prohibited passive recharge

credits and describe passive recharge as credit for water not pumped. (ASR Phase I and ASR Phase II Findings and Order).

12. AMCs represent water that could have been pumped but is not pumped. (Hearing Transcript Vol. VI, Letourneau, p. 1515, ll. 6-8.)

13. Water appropriations provide a quantity of water not to exceed the stated amount in any calendar year. With the exception of multi-year flex accounts, there is not a future credit for water that isn't pumped.

14. As proposed, AMCs are passive recharge credits and do not artificially replenish water into the basin storage area that is "available for subsequent appropriation" as clearly required for a Recharge Credit.

15. The City is seeking a credit for the non-use of water. Credits for the non-use of water are not currently allowed and it is not in the public interest to implement such a regulatory change without further research and study of the state-wide implications. If approved, a credit for non-use should be available to all water users and not exclusively to the City. Across the state there are water users with both surface water and groundwater rights. The AMC concept would make it easy for people to manipulate the system to accumulate groundwater rights for dry periods. This would have an adverse effect on the aquifer, cause stream depletion and impairment between water users. (Hearing Transcript Vol. X, Pope, pp. 2720-2722.) DWR seeks to treat the City's decision not to pump groundwater as management of groundwater earning a future credit and an irrigator leaving water in the aquifer as an unused water right with no future benefit. (*Id.* Vol. VII, Letourneau, pp. 1641-1642, ll. 22-2.) The AMC proposal discriminates to give the City a credit that is not similarly available to other water users. The City's decision to divert

water from the Little Arkansas River in lieu of the Equus Beds is not recharge and should be treated the same as all other water users who do not use their full appropriation.

III. K.S.A.82a-708(b): Reasonable, Impairment, and Same Source of Supply

16. The City must demonstrate the proposed change is **reasonable**, will not **impair** existing rights and relates to the **same local source** of supply as that to which the water right relates under K.S.A.82a-708(b) and as directed by the Chief Engineer and Hearing Officer orders.

A. Impairment

17. Several statutes address impairment. New applications to appropriate water shall be approved **if** the proposed use does **not impair** existing water rights (K.S.A. 82a-711a), change applications must **demonstrate** the proposed change **will not impair** existing rights (K.S.A. 82a-708b, *emphasis supplied*), and those without prior rights or senior rights are prohibited from diversions that would impair or threaten to impair senior water right holders K.S.A. 82a-717(a). None of these statutes define impair. K.S.A. 82a-711(c) provides that "impairment shall include the unreasonable raising or lowering of the static water level or the unreasonable increase or decrease of the streamflow or the unreasonable deterioration of the water quality at the water user's point of diversion beyond a reasonable economic limit." (Hearing Transcript Vol. VII, Letourneau, pp. 1670 - 1671, ll. 21-3; *id.* Vol. XI, Boese p. 3044, ll. 8-21.) Only 82a-711(c) includes the phrase "beyond a reasonable economic limit"; such language is not included in K.S.A. 82a-708b or K.S.A. 82a-717a addressing change applications or common law claimants.

18. The definition of impairment was considered in *Garetson Bros. v. Am. Warrior, Inc.,* (56 Kan. App. 2d 623, 648 (Kan. Ct. App. 2019). The Kansas Court of

appeals affirmed the district court's use of "diminishes, weakens or injures the prior right" and declined to add 'beyond a reasonable economic limit language to K.S.A. 82a-717a. (*Id*. at 649).

19. K.S.A. 82a-717(b)(1) provides preventative relief to vested and prior appropriation right holders by specifically allowing the Chief Engineer to provide such claimants with an order preventing a proposed diversion that would impair such prior rights.

20. K.S.A. 82a-711(a) was held to specifically require the chief engineer to consider potential impairment of senior water right holders and the public interest ***prior*** to granting a water right. "Once the chief engineer finds that 'a proposed use neither impairs a use under an existing water right nor prejudicially and unreasonably affects the public interest, the chief engineer shall approve all applications for such use made in good faith'." (*emphasis added*) *Clawson v. State*, (315 P.3d 896, at 908, (Kan. Ct. App. 2013)).

21. Applicable regulations contemplate both direct well to well impairment in K.A.R. 5-4-1 and impairment caused by a regional lowering of the water table in K.A.R. 5-4-1(a).

22. "It shall be unlawful for any person to prevent, by diversion or otherwise, any waters of this state from moving to a person having a prior right to the same, or for any person without an agreement with the state of Kansas to divert or take any water that has been released from storage under authority of water reservation rights held by the state of Kansas." (K.S.A. 82a-706b; Hearing Transcript Vol. VII, Letourneau, pp. 1670, ll. 4-12.)

23. AMCs have the potential to cause an unreasonable lowering of the static water level. The Wichita Well Field Area is fully appropriated. Additional appropriations

violate the safe yield regulations intended to protect the health and sustainability of the aquifer. AMCs do not add to the water supply and therefore should not be exempt from safe yield regulations. To approve AMCs without requiring physical recharge to the aquifer is a new appropriation, in violation of safe yield and would allow an unreasonable lowering of the water level. We have already witnessed what happens when all water users in the area use their water rights. The City has described the hole in the aquifer in 1993, the lowest known levels for the aquifer. In addition to the water pumped by the City to create the 1993 hole, the City proposes to be able to pump an additional 18,000 acre-feet annually. The City also intends to increase that quantity with the 30 previously filed applications of 15,000 acre-feet annually for an additional aquifer depletion of 33,000 acre-feet annually on top of the 40,000 acre-feet in native rights which previously led to the lowest known aquifer levels on record. The June 1, 2018 letter from former Chief Engineer Barfield expressed the DWRs determination the Proposal was in the public's interest while the City's additional applications were still pending.

24. Lowered Minimum Index Levels also have the potential to cause an unreasonable lowering of the static water level. The City seeks to lower the minimum index levels 9-23 feet below the lowest known aquifer levels. The current minimum index levels were agreed during Phase I and Phase II of the project specifically to protect the public interests and prevent impairment. The City did not consider the impact to other water users, streamflow, water quality or sustainability of the aquifer. Such a significant depletion of the aquifer is unreasonable without first carefully analyzing the potential impact to the aquifer and others. The City and DWR considered only the change in water level from a carefully curated pumping scenario that does not reflect probable aquifer levels

or the full extent of pumping that would be allowed by approving the requested modifications.

25. The City's failure to evaluate full withdrawals contemplated by the proposed modifications, the potential impacts to water quality of such withdrawals, the impact to streamflow, and the practical saturated thickness after such a lowering of the aquifer levels make it impossible for the City to demonstrate the proposed modifications are reasonable and will not cause impairment.

B. Source of Supply

26. The City has the burden to demonstrate the proposed changes relate to the same source of supply. The authorized source for Artificial Recharge is the Little Arkansas River surface water diversion. (File No. 46,627.) The authorized source for City's recharge and recovery wells is "groundwater recharge credits accumulated in the Equus Beds aquifer, that may be recovered pursuant to the operation of the approved aquifer storage and recover project." (File No. 46,617, et al.)

27. The City proposes to accumulate AMCs for Groundwater not pumped from the Equus Beds. The City failed to demonstrate how Groundwater not pumped from the Equus Beds is the same local source of supply as the Little Arkansas River in order to perform Artificial Recharge and accumulate a recharge credit. AMCs do not cause water diverted from the Little Arkansas River to infiltrate or be injected into the aquifer. Therefore, no source water enters or is injected into the aquifer when accumulating an AMC. When the City later recovers or diverts Equus Beds Groundwater an accounting process cannot magically change the water to Source Water. (K.A.R. 5-1-1(ii) and K.A.R. 5-1-1(yyy).

28. In an Aquifer Storage and Recovery System, physical Recharge Credits have a neutral impact on the aquifer, however, AMCs seek to recover Groundwater without engaging in Recharge, which requires infiltration of water "*into an aquifer." (See* K.A.R. 5-1-1(lll)). To qualify as Source Water under K.A.R. 5-1-1(yyy) and meet the requirements of an ASR system, the water must be available for appropriation.

C. Reasonable and in the public interest

29. K.S.A. 82a-711(b) identifies the factors to consider in deciding whether or not a proposed use or appropriation is in the public interest. These factors include: (1) Established minimum desirable streamflow requirements; (2) the area, safe yield and recharge rate of the appropriate water supply; (3) the priority of existing claims of all persons to use the water of the appropriate water supply; (4) the amount of each claim to use water from the appropriate water supply; and (5) all other matters pertaining to such question.

30. K.A.R. 5-3-9 provides additional factors to ascertain whether a proposed use will prejudicially and unreasonably affect the public interest, including the protection of senior water rights from impairment by the unreasonable concentration of naturally occurring contaminants, and ability to reasonably recharge the alluvium or other aquifers hydraulically connected to the stream over time. K.A.R. 5-3-9 also contemplates the ability of impairment across hydrologically connected water sources and clarifies the public interest is served by only appropriating the safe yield of any source of water supply, including hydraulically connected sources of water supply.

D. Minimum Desirable Streamflow (MDS)

31. For any watercourse where the legislature has established a minimum desirable streamflow, the chief engineer shall withhold the amount of water necessary to establish and maintain the MDS. (K.S.A. 82a-703a.). The MDS established for the Little Arkansas River at Alta Mills is 5 cfs. and Valley Center is 20 cfs. (K.S.A. 82a-703c.)

32. Both AMCs and lowered minimum index levels have the potential to cause an unreasonable decrease to streamflow. The river depletion caused by the City pumping 40,000 acre-feet in native water rights in the City's drought scenario is 146,300 acre-feet over the 10 year period and commences in the first year of pumping. (District Ex. 68, Romero Expert report Fig. 2.) Increasing the City's appropriation by approving AMCs without a direct offset from physical recharge added to the aquifer will exacerbate the streamflow depletion decreasing the supply of water to the aquifer and directly impacting downstream users. Allowing drawdown to the proposed minimum index levels in the City's simulation allows the City to withdraw an additional 79,500 acre-feet of water from the aquifer. (Hearing Transcript, Vol. IX, Romero, p. 2503-2504, ll. 23-25, 1-5.) Because the City's initial pumping of native rights already impacts streamflow in year 1, increasing the amount of water withdrawn from the aquifer by lowering the minimum index level will only increase streamflow depletion. Reduction in streamflow also reduces both natural and artificial recharge necessary for the aquifer to recover from drought conditions and can persist long after pumping ceases.

33. The current minimum index levels impose a practical limitation to curb excessive groundwater diversions in the form of recharge credits and help prevent an impact to MDS. (Hearing Transcript, Vol. XII, Austin p. 3211, ll. 15-22.) Removing such

a limitation, increases possible groundwater diversions and creates the potential to impact MDS.

34. Neither the City nor DWR considered the potential impact the proposed modifications will have to MDS.

E. Safe Yield and a Sustainable Aquifer

35. Safe yield is one factor to assess when considering whether a proposed use or appropriation is in the public interest. K.A.R. 5-3-10 limits new appropriations to the safe yield of the water source. The Equus Beds, as the relevant water source for the City's proposed changes is governed by GMD2 which also has specific safe yield regulations in K.A.R. 5-22-7 which provides the procedures to calculate the allowable safe-yield amount for the resource.

36. Safe yield is a calculation considering the balance between the recharge and discharge of the aquifer and directly related to quantity of water available for appropriation. (Hearing Transcript Vol. VIII, Letourneau, pp. 1979-1980, ll. 24-4.) Safe yield helps to determine what is in the public interest reflecting the amount of water the aquifer will safely provide. (Hearing Transcript Vol. VII, Letourneau, p. 1673, ll. 7-15.)

37. Applications for aquifer storage and recovery wells are not subject to K.A.R. 5-22-7(a). (K.A.R.5-22-7(b)(7).) Unlike artificial recharge where water is injected or caused to infiltrate into the aquifer AMCs are a consumptive use and not a neutral impact. If AMCs are allowed, they should be subject to safe yield analysis. The logic in exempting the later withdrawal of water physically added to the aquifer does not similarly apply to the theoretical water associated with AMCs.

38. GMD2 performed a safe yield analysis for all 30 of the water permits the City is proposing to modify and none of them meet safe yield. (Hearing Transcript Vol. XI, Boese, p. 2915, ll. 11-14; *id.* p. 2946, ll. 5-8; District Ex. 59.)

39. Relevant statutes and regulations do not mention aquifer fullness as grounds for new appropriations or increasing consumptive use. Unlike the arbitrary and temporary nature of aquifer "fullness" as an indicator of reasonableness, GMD2 relies on safe yield when evaluating new and change applications. Aquifer levels and saturated thickness vary overtime and seasonally. Neither provides any indication regarding sustainability or long-term health. If water decisions were made based on average water levels or fullness rather than safe yield, new appropriations could be granted based on the time of year or how recently it rained. The City's request for modifications is no different. The average fullness across a 2 mile index cell or providing average saturated thickness deceptively portrays the availability of water. Water resource planning for the period of time when water has the most significant value cannot be based on such capricious standards and that is why Kansas Statutes, DWR regulations and GMD2 rules ALL consistently require safe yield to be considered. Relying on remaining aquifer fullness in approving the requested modifications falls short of any reasonableness standard. To protect the public interest and prevent impairment the proposed modifications must comply with safe yield.

40. Modifying permits to exceed safe yield is not in the public interest.

F. Water Quality

41. Both AMCs and lowered minimum index levels have the potential to cause an unreasonable deterioration of the water quality. The Wichita well field area has a known saltwater contamination issue from both the Burrton Chloride plume and the Arkansas

River. A significant impetus, advertised benefit and agreed objective of the ASR project was specifically to slow the movement of chlorides by maintaining a fuller aquifer as a hydraulic barrier to prevent migration into the well field area. The City now seeks to increase their ability to withdraw water from the Equus Beds and lower the very limits established to protect against chloride migration without considering the impact to water quality and specifically chloride migration.

42. Lowering of the water levels, as is the natural consequence of allowing AMCs in lieu of physical recharge or allowing the City to recover recharge credits down to a lowered minimum index levels, increases the potential to accelerate the movement of chloride into the well field area. Salt "becomes a deleterious substance when it invades the fresh water supplies of the people. Fresh water contaminated with salt becomes a poison to man, beast, and plant alike." (*Miller v. Cudahy Co.* 592 F. Supp. 976, 994 (D. Kan. 1984).)

43. Minimum index levels are one of many interrelated safeguards in the permit conditions and MOUs to protect the public interest. A primary purpose of the initial ASR project was to form a freshwater barrier to salt water contamination. Both Conclusion No. 13 and Order No. 8, stem from the principle that withdrawal of recharge credits during period when water levels are below those that existed in 1993 would not serve the public interest because it would deteriorate any established hydraulic barrier created from recharge injection. The limitations to the recharge credit withdrawal relative to the lowest index water levels for Phase I (January 1993) were largely based on maintaining water quality in the City's well field with a hydraulic barrier.

44. The proposed changes will diminish, weaken or injure existing water users in the well field area. AMCs allow the City to withdraw additional groundwater without first adding to the groundwater supply, this aggravates the over-appropriated condition of the area. Dividing the limited water resource across a larger number of appropriation rights dilutes the rights of other water users and reduces the likelihood of available, quality water when such water is needed. Lowering the aquifer to proposed minimum index levels allows further aquifer depletion without regard for the ability to recover, increases chloride migration, and will cause some water users to lose their water column in existing wells.

45. Neither the Proposal nor the City's testimony demonstrated the proposed changes will not cause impairment. DWR testified "We didn't look at impairment related to a new application or a change, but then we did look at the table with the aquifer still 80 percent full at the end of eight years of a 1 percent drought, we didn't feel that impairment would occur." (Hearing Transcript Vol. VII, Letourneau, p. 1820, ll. 3-8.). The Proposal does not meet the threshold statutory requirement or burden of proof requirements included in hearing notices to demonstrate the proposed changes will not cause impairment.

G. Aquifer Fullness not a factor in whether appropriation reasonable.

46. The public interest factors under K.S.A. 82a-711(b) and K.A.R. 5-3-9 do not list average remaining saturated thickness or fullness. The Division relied on average remaining saturated thickness at the end of the simulated drought when determining the lowered index levels are reasonable and in the public interest because the new levels are not that significant compared to the saturated thickness of the aquifer. (See Hearing Transcript Vol. VI, Letourneau, pp. 1531-1532, ll. 21-1; *id.* at p.1534, ll. 9-19). The

proposed modifications would allow the City to divert significantly more water than what is reflected in the simulated drought.

47. The Division further contends the proposal is in the public interest because it allows the City to manage the aquifer full; however, nothing in the proposal addresses any obligation or requirement to manage the aquifer full. The City retains full discretion and flexibility to withdraw water from the aquifer. An illusory promise in exchange for an additional appropriation in an over appropriated aquifers is not in the public interest.

48. It is contrary to the public interest to disregard the specific factors intended to protect the public interest. The City failed to demonstrate the proposed modifications are in the public interest.

IV. Change in Place of Use and Expansion of Consumptive Use

49. K.S.A 82a-708b allows the owner of a water right to change the place of use by submitting a change application with accompanied application fee.

50. Approval of application File No. 46,627 allows the City to appropriate water for Artificial Recharge in the basin storage area previously identified in Phase I of the ASR project. The basin storage area identified in Phase I is the approved place of use for artificial recharge under File No. 46,627.

51. The lowered minimum index levels in the City's Proposal seek to expand the Phase I basin storage area by lowering the bottom of the vertical extent of the basis storage area. Such an expansion of the basin storage is a change in place of use requiring a change application.

52. By failing to submit a change application or application fee the City does not meet the requirements to change the place of use for File No. 46,627. Approving the

lowered index levels for approval without first having the City file a change application is a failure to follow established procedures.

53. "The extent of consumptive use shall not be increased substantially after a vested right has been determined or the time allowed in which to perfect the water right has expired, including any authorized extension of time to perfect the water right." (K.A.R. 5-5-3.)

54. In *Wheatland Electric Cooperative v. Polansky*, the change in place of use removed a practical limitation on the quantity of water that could be diverted and the court affirmed the attorney general opinion "if approval of a change application would substantially increase the gross pumpage under that water right by allowing the right to be pumped to its maximum quantity every year…the consumptive use would also increase and nearby well owners who depend on that same source of water supply would be injured by the change approval." (*Wheatland Electric Cooperative v. Polansky,* 46 Kan.App.2d 746, 754-755, 265 P.3d 1194 (2011)).

55. Expanding the basin storage area between 9 and 23 feet throughout removes a practical physical limitation and substantially increases the quantity of water the City can (i) divert and store in the basin storage area as artificial recharge and (ii) later divert for municipal use pursuant to recharge and recovery well permits.

56. Similarly, eliminating the need to use the Aquifer Storage and Recovery System to inject or cause water to infiltrate into the Equus Beds removes a significant practical limitation on the accumulation of recharge credits and quantity of water the City is able to divert from the Little Arkansas River for the beneficial use of Artificial Recharge. The removal of the protective requirements and limits allows the City to significantly

increase the consumptive use of both the Little Arkansas Diversion (File No. 46,627) and also from the Equus Beds through all of the City's recharge and recovery wells.

57. AMCs seek two beneficial uses of the same gallon of water. The water is first diverted for municipal use and used by the City. Later the City would divert another gallon of water from the Equus Beds again for municipal use. Essentially the City seeks to appropriate and use water twice, significantly increasing consumptive use. Rather than actively engaging in recharge through infiltration or injection of water into the aquifer the City seeks to take native water in the aquifer; water gained through natural precipitation recharging the Aquifer. This water has already been appropriated pursuant to other permits.

58. AMCs do not increase the water supply, they merely provide the City with more water rights.

V. Chief Engineer Authority

59. "No person may acquire a new appropriation right to the use of waters of the state for other than domestic purpose without making an application to the Chief Engineer for a permit to make such an appropriation" K.S.A. 82a-709. Additionally, K.S.A. 82a-708b provides: "(a) Any owner of a water right may change the place of use, the point of diversion or the use made of the water, without losing priority of right, provided such owner shall: (1) apply in writing to the Chief Engineer for approval of any proposed change; (2) demonstrate to the Chief Engineer that any proposed change is reasonable and will not impair existing rights; (3) demonstrate to the Chief Engineer that any proposed change relates to the same local source of supply as that to which the water right relates; and (4) receive the approval of the Chief Engineer with respect to any proposed change."

The City did not file an application to the Chief Engineer for a new appropriation under K.S.A 82a-709 or a change application as allowed by K.S.A. 82a-708b. (Hearing Transcript Vol. V, Letourneau, p. 1255, ll. 3-17; *id.* at Vol. VII, p. 1658, ll. 3-7.)

A. Chief Engineer's authority to modify prior approvals

60. Without a new or change application, the Chief Engineer lacks jurisdiction to make changes to the existing water permits contemplated by the Proposal to expand the Basin Storage Area and create a new form of recharge credit. "The Chief Engineer cannot retain jurisdiction once the Kansas Department of Agriculture issues a final order." *Clawson v. State*, 49 Kan. App. 2d 789, 315 P.3d 896, 902 (2013). In Kansas, administrative agencies do not possess common-law powers, authority must be conferred statute. *Id.* at 905. "Where an agency has no specific statutory authority to retain jurisdiction, it has no ability to reconsider or modify its final orders once the time for seeking judicial review has passed. (*Clawson v. State* 315 P.3d 896, 905 (Kan.Ct. App. 2013) (citing *Johnson v. Kansas Dept. of Revenue,* 29 Kan.App.3d 455, 459, 27 P.3d 943 (2001)). The court also found that the Chief Engineer does not gain continuing jurisdiction merely by adding such language to the permit.

61. Finally, the court clarified the Chief Engineer does not retain jurisdiction to modify an order during the perfection period. *Clawson* at 906. Any modification of the water rights during the perfection period depends on the applicant's actions and not those of the chief engineer. (*Clawson* 315 P.3d at 907).

62. The City's proposed expansion of the basin storage area is a material change to the City's existing permits to appropriate water. The approval of each of the Phase II recovery permits includes the specific elevation for the index cell in the permit along with

the restriction on recovery of water artificially recharged if static water level is below such a limit. Lowering the minimum index levels expands the Basin Storage Area ("BSA") and changes the specified levels for each permit. The BSA is the approved place of use for the City's authorization to divert water for the beneficial use of Artificial Recharge. (Application File No. 46,627). Expanding the BSA changes the place of use and requires a change application. The BSA acts a physical limit to the City's Little Arkansas River diversion for Artificial Recharge beneficial use. Expanding the BSA removes the protective physical limits and allows the City to divert more water thereby increasing the consumptive use. Lowering the minimum index levels also allows the City to divert more recharge credits from the Equus Beds. In the simulated drought scenario, the lowered minimum index levels allow an additional diversion of 79,500 acre-feet of recharge credits the City is not currently allowed to divert.

63. The City is requesting a new appropriation, expansion of consumptive use and change in place of use and therefore must make an application for such an appropriation under K.S.A. 82a-709 and K.S.A. 82a-708b. The Chief Engineer does not have the authority to modify this order as the City has proposed. If the proposal is approved the change in place of use and increase in consumptive use would be accomplished without filing a new or change application. As in *Wheatland Electric Cooperative v. Polansky* this poses a significant risk to nearby well owners and other water users.

64. The chief engineer lacks authority to amend or modify existing water permits as proposed.

B. Chief Engineer's authority to establish AMCs as a new Recharge Credit

65. The Chief Engineer is authorized to "enforce and administer the laws of this state pertaining to the beneficial use of water" and is further authorized to "adopt, amend, promulgate and enforce such reasonable rules, regulations and standards." K.S.A. 82a-706 and K.S.A. 82a-706a.

66. *Clawson v. State* considered the limits of the chief engineer's agency power as it applies to water. (*Clawson v. State* 315 P.3d at 901). "The KWAA grants the chief engineer of the DWR the authority to 'enforce and administer the laws of this state pertaining to the beneficial use of water and [the chief engineer] shall control, conserve, regulate, allot and aid in the distribution of the water resources of the state for the benefits and beneficial uses of all its inhabitants in accordance with the rights of priority of appropriation." K.S.A. 82a-706. (*Clawson v. State* 315 P.3d at 904.)

67. Kansas statutes and regulations do not expressly authorize the use or concept of AMCs. AMCs are not consistent with the provisions of the Water Appropriation Act, K.S.A. 82a-701 et seq., nor the regulations promulgated thereunder… most specifically K.A.R. 5-1-1, 5-12-1 through 5-12-4, as well as K.A.R. 5-22-1, 5-22-10 and 5-22-17. (Hearing Transcript, Vol. X, Pope, p. 2711, ll. 13-16; *id.* p. 2728, 10-23; District Ex 2, Pope Expert Report, p. 8.) AMCs do not involve artificial recharge as defined by K.A.R. 5-1-1(g).

68. Aquifer Maintenance Credits (AMCs) allow the diversion of additional water without filing a new application to divert water. Disguising this additional appropriation as a change to the ASR accounting methodology does not work; no change in accounting methodology can qualify water diverted from the Little Arkansas and used directly by the City as a Recharge Credit or justify a future credit for water not pumped.

K.A.R. 5-1-1 (mmm) defines Recharge Credit as "the quantity of water that is stored in the basin storage area and that is available for subsequent appropriation for beneficial use by the operator of the aquifer storage and recovery system." The City's AMC proposal does not involve storing any water in the basin storage area and instead seeks to "divert native water present in the Aquifer, which is there as a result of recharge from precipitation and the required return flow from other water rights in the area." (District Ex. 2, Pope Expert Report, p. 9.)

69. If AMCs qualify as another form of Recharge Credit there must be some aquifer recharge. No water is added, injected or caused to infiltrate the aquifer; therefore, there is no aquifer recharge and AMCs cannot be a recharge credits. AMCs are no different than the City's current diversion for municipal use under File No. 46,627. The AMC concept does not change anything with the physical process other than to check aquifer levels each January to determine whether the aquifer is full or whether physical recharge capacity exists. This annual reference to aquifer water levels is not enough to convert a diversion for municipal use to an artificial recharge use, especially when the water is still going directly to the City for consumption. What the City has proposed seeks to consume the same gallon of water twice.

70. If AMCs are a credit for water not pumped, the chief engineer has no authority to re-appropriate Groundwater, as defined by K.A.R. 5-1-1(ii) that has already been appropriated. In withdrawing or recovering AMCs from the aquifer the City would essentially be stealing, pursuant to DWR approval, groundwater already appropriated to other water right holders. There is a significant difference between the current process of

accumulating recharge credits based on the physical injection of water into the aquifer and the proposal to accumulate an AMC without actually recharging the aquifer.

71. AMCs seek to accomplish something equivalent to a regulatory change, in allowing a future credit for water not pumped from an annual right, without going through the regulatory process.

VI. Beneficial Use vs. Speculative Use

72. The KWAA clearly states "appropriation rights in excess of the reasonable needs of the appropriators shall not be allowed." (K.S.A. 82a 707(e)). Water rights are also subject to the principle of beneficial use.[5] Storage and drought assurance are not listed as beneficial uses of water. Additionally, the Chief Engineer is tasked with approving applications utilizing water for beneficial use with orders resulting in the highest public benefit and maximum economic development from the use of the water. (K.S.A. 82a-711).

73. "Beneficial use is the lynchpin of the prior appropriation system, as it is 'the basis, measure, and limit' of a water right. All western water codes encapsulate the doctrinal trinity of beneficial use, waste and forfeiture." The fundamental purpose is to avoid speculation, maximize the use of a scarce resource and provide flexibility to water users.[6]

74. The City's water rights greatly exceed their annual demand including Cheney Reservoir, Little Arkansas River, Equus Beds Well Field, E&S Wellfield, and Bentley Reserve Wellfield. The City considered nine (9) different options to meet its future

[5] Peck, John C. Property Rights in Groundwater – Some Lessons from the Kansas Experience. 12 Kan. J.L. & Pub. Pol'y 493, 497 (2002 – 2003)

[6] Zellmer, Sandra, The Anti-Speculation Doctrine and Its Implications for Collaborative Water Management, August 8, 2008 Nevada Law Journal. P 1004. Available at https://scholars.law.unlv.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1127&context=nlj

water needs. (Hearing Transcript Vol. I, Pajor, p. 229, ll. 4-20; *See also* City Ex. 18 p.3.) All water users would like assurances of an adequate water supply during a 1% drought, especially rural residents whose only option for water is a shallow domestic well. K.A.R. 5-22-14 limits the maximum reasonable quantity for beneficial use and does not provide a quantity to have a guaranteed supply of water during a 1% drought.

75. The City seeks to store unused water when there is a surplus in order to withdraw water when there is the greatest need and demand. Unlike most other Equus Beds water users, the City operates a water utility with the ability to profit from selling water during these periods of high demand and low supply.

76. If up to 120,000 acre-feet of groundwater can safely be appropriated to the City as AMCs, no data was presented to show that appropriating such water for storage in the event of a 1% drought achieves the highest public benefit or maximum economic development compared to other potential beneficial uses.

77. The City's speculative need for water does not justify an arbitrary expansion of the Basin Storage Area to a size more convenient for the City. The City failed to provide any basis or substantiation of artificial recharge success to substantiate an expansion to the basin storage area. The expansion of the basin storage area by lowering the minimum index levels serves the exclusive purpose of meeting the City's speculative future water needs.

VII. ASR Accounting Methodology

78. "…If more than one application for a permit to appropriate water for artificial recharge relates to the same aquifer storage and recovery system, each application shall use the same methodology for accounting water stored in the basin storage area. The accounting of the water balance of all water entering and leaving the basin storage area

shall be determined by using sound engineering methods based on actual measurements, generally accepted engineering methodology, or a combination of both." K.A.R. 5-12-1(d)(1).

79. An initial 5% loss for AMCs based on what retention might look like if the aquifer were at the theoretical perfect level for artificial recharge is not based on actual measurements or a generally accepted engineering methodology, it is merely the city's ideal scenario rather than actual measurements or sound engineering.

80. An average of a 3% loss is similarly not based in science or engineering. The City can use the same percentages as used for physical recharge based on where the AMC is allocated. The City's proposed method leaves room to manipulate the allocation of credits to locations at the bottom of the basin storage area where leakage rates are higher but availability of water is more likely during a drought due to proximity to the river and the basin storage area draining in that general direction. The City can maximize credit retention by recharging to the northwest index cells rather than the current practice of recharging close to the river.

81. The proposed accounting methodology for AMCs is not based on sound engineering methods based on actual measurements, generally accepted engineering methodology, or a combination of both. (City Ex. 24, September 2017 letter, p. 1.)

VIII. Unconstitutional Taking

82. The proposed modifications to lower the minimum index levels and allow the creation and withdrawal of AMCs, without a prerequisite recharge system described in K.A.R. 5-12-1(b)(1) to accumulate such credits is an unauthorized taking in violation of the Fifth Amendment of the United States Constitution.

83. The Fifth Amendment of the United States Constitution (1) prohibits the taking of property without due process of law and (2) prohibits the taking private property (a) for public use and (b) without just compensation. (U.S. Const. amend. V.)

84. The Fourteenth Amendment of the United States Constitution extends the protection against takings to state and local governments. (U.S. Const. amend. XIV, § 1; *Chicago Burlington c. R'D v. Chicago*, 166 U.S. 226 (1897).)

85. Inverse condemnation occurs when the government takes the property without using eminent domain powers and individuals must bring a cause of action to receive compensation. The three elements for inverse condemnation are: (1) a private property interest (2) taken (3) for public use. Just compensation must be paid when these elements are present. *Creegan v. State,* 391 P.3d 36, 41 (Kan. 2017). Eminent domain proceedings are initiated by the condemning authority and an inverse condemnation is initiated by the property owner.

A. Real Property Right

86. A water right is a real property right appurtenant to and severable from the land. (K.S.A. 82a-701g.)

87. Domestic water use does not require a permit but is an appropriated right. (K.S.A. 82a-705a.)

88. The Wichita well field area is fully appropriated, which means all of the water, including water entering the aquifer has already been appropriated, and in fact appropriations exceed the safe yield which results in an over-appropriated status. Intervenors possess water rights, domestic wells or both. These Equus Beds appropriations, including domestic wells, are property rights with varying priority dates

and competing water rights for the water in the Wichita well field area. (Hearing Transcript Vol. X, Pope, p. 2727, ll. 8-21.)

89. "A contract is property, and, like any other property, may be taken under condemnation proceedings for public use." *Creegan v. State,* 391 P.3d 36, 45 (Kan. 2017) (citing *Long Island Water Supply Co. v. Brooklyn*, 166 U.S. 685, 690, 17 S.Ct. 718, 41 L.Ed 1165 (1897). The City and GMD2 are both parties to Memorandum of Understanding regarding Wichita's Proposed Aquifer Storage and Recovery Project, Phase 1 signed by the City on August 31, 2004 and GMD2 on September 14, 2004 and the Memorandum of Understanding regarding Wichita's Proposed Aquifer Storage and Recovery Project, Phase II dated December 3, 2008. Both contracts reference the Basin Storage Area as the aquifer's unsaturated zone (as defined in K.A.R. 5-1-1-(k) prior to the 2016 amendments), and the lowest index water level. The Phase II MOU recommends a waiver from well spacing requirements due to the unique nature of recharge and recovery wells.

90. "The right to exclude is "a fundamental element of the property right". (*Nursery v. Hassad* No. 20-107 at 10 (June 23, 2021), (citing *Kaiser Aetna v. United States*, 444 U.S. 164, 179-180.))

B. Physical and Per Se Physical Takings

91. A physical taking occurs when the government uses its eminent domain power to acquire property. "The same is true when the government physically takes possession or occupies property without acquiring title to it. (*Nursery v. Hassid*, No. 20-107, 8 (June 23, 2021) citing *United States v. Pewee Coal Co*., 341 U.S. 114, 115-117 (1951) and *United States v. Cress*, 243 U.S. 316, 327-328. (1917) (recurring flooding resulting from a dam is occupation of property and physical taking). "These sorts of

physical appropriations constitute the 'clearest sort of taking' and we assess them using a simple, *per se* rule: The government must pay for what it takes." (*Nursery v. Hassid* No. 20-107, 8 (June 23, 2021) citing *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001) and *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 533 U.S. 302, 322 (2002).

92. A taking can occur where the government restricts an individual's ability to use his property by imposing regulations. The Court has generally applied the *Penn Central* factors to determine whether a regulation goes "too far" and is a "regulatory takings". (*Nursery v. Hassid* No. 20-107, 9 (June 23, 2021)). The Court, in *Nursery v. Hassid,* clarifies the issue as whether, by any means, the government has physically taken property or restricted the owner's ability to use such property. "Whenever a regulation results in a physical appropriation of property, a *per se* taking has occurred, and *Penn Central* has no place." (*Nursery v. Hassid*, No. 20-107 at 10).

93. Prior to the recent Supreme Court decision in *Nursery v. Hassid* two categories of regulatory action were generally deemed *per se* takings; (i) the regulation requires a property owner to suffer a permanent physical invasion of the property and (ii) the regulation deprives an owner of all economically beneficial use of the property. (*Lingle v. Chevron U.S.A*. 544 U.S. 528 (2005) at 538 citing *Loretto v. Teleprompter Manhattan CATV Corp*., 458 U.S. 419 (1982) and *Lucas v. South Carolina Coastal Counsel*, 505 U.S. 1003 at 1019 (1992)). The duty to compensate for a physical or *per se* taking exists regardless of whether the it the taking is full or partial, temporary or permanent. (*Tahoe-Sierra*, 535 U.S. at 322.). The extent of the taking, or physical invasion relates only to the amount of compensation due. (*Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S.*

419, 436-437(1982)). "Even if the Government physically invades only an easement in property, it must nonetheless pay just compensation. (*Nursery v. Hassid* at 12 (citing *Kaiser Aetna v. United States*, 444 U.S., at 180.)) The Court again found the appropriation of an easement is a physical taking in *Nollan v. California Coastal Commission*. (438 U.S., 825 at 831 (1987)). A right to take access that is exercised only from time to time does not make it any less a physical taking when the government appropriated a right to invade. (*Nursery v. Hassid*, at 15, 17).

94. Property ownership includes the right to exclude as "a fundamental element of the property right." (*Nursery v. Hassid*, No. 20-107 at 10 (2021)). The Supreme Court expressly disagreed with the notion that limited rights of access to private property should be considered under regulatory taking standards as opposed to *per se* takings. (*Nursery v. Hassid* at 17). Therefore, considering the public interest or whether the regulation goes too far in determining whether there is a taking is not necessary. "Our cases establish that appropriations of a right to invade are per se physical takings, not use restrictions subject to Penn Central. (*Nursery v. Hassid* at 19.)

95. Both proposed changes will cause the physical or *per se* taking of real property.

96. The uncompensated appropriation of water rights to the City through AMCs and/or a lowered minimum index level, when no such rights are available in the well field area, establishes a physical taking due to the over appropriated status of the Wichita well field area. Any additional appropriation or increase in consumptive use is a physical taking of water already appropriated and belonging to someone else. AMCs result in an additional appropriation because no artificial recharge occurs and by essentially using each unit of

water twice changing the water source from recharge credits to Equus Beds groundwater and increasing the consumptive use of recharge credit recovery.

97. Lowering the Minimum Index Level expands the BSA and allows the City to store water in additional storage space under land owned by others. Expanding the BSA is a permanent physical intrusion into land owned by others and a *per se* taking. It is also a change in place of use for Artificial Recharge diversions without consideration of how such change impacts consumptive use. Additionally, lowering the minimum index levels displaces the native water in the aquifer appropriated to others to a lower, more difficult and expensive portion of the aquifer, allowing the City's invasion to act as a barrier to property rights. This displacement, at a minimum, interferes with the ability for water users to access the native aquifer water they have a right to access and has the likely potential to impede all access to the water they have rights to use. Displacing the native aquifer water belonging to water right holders and domestic users in order to expand the BSA and is a physical taking requiring compensation. The occasional nature of accumulating and storing water in the expanded BSA does not negate the physical taking.

98. The appropriation of additional water rights as proposed in the form of AMCs has the potential to impair or deprive other water right holders from the ability to withdraw water pursuant to existing water rights and make beneficial use of such water, especially during peak pumping times/irrigation season or during a drought. In *Nursery v. Hassid*, where a regulation appropriated others a right to invade the growers' property, even on a temporary basis of 3 hours per day, the Supreme Court recently held the invasion constituted a *per se* physical taking and it was not necessary to apply the *Penn Central* factors.

99. Safe yield regulations are in place to regulate the amount of water the aquifer can safely provide. Exceeding the safe yield leads to depletion of the resource. The recovery of physical recharge credits was not subject to safe yield because there is a clear addition of water to the aquifer. AMCs do not add to the Equus Beds water supply. As Professor Burke Griggs provided in his testimony to the House Committee on Water January 26, 2021 "A real property right predicated upon a disappearing resource is a pathetic legal fiction." Additionally, because the waters are dedicated to the public depleting water resources is in violation of the public interest. AMCs create these risks if not subject to safe yield requirements.

C. Regulatory Takings

100. In applying the Takings Clause to state and local government regulatory actions the Supreme Court held that regulation of property is allowed; however, if a regulation goes "too far" it constitutes a compensable taking. (*Pennsylvania Coal v. Mahon*, 260 U.S. 393, 415 (1922)) "When a regulation reaches a certain magnitude, there must be an exercise of eminent domain and compensation for the act to be constitutional." (*Id*. at 413).

101. If the circumstances of a case do not amount to a *per se* taking, then the "catch-all standard promulgated in *Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 124, 98 S.Ct. 2646 (1978) are used to analyze the case. (*Frick v. City of Salina*, 290 Kan. 869, 885 (2010)).

102. The *Penn Central* Factors are used to determine whether a regulation has gone "too far" and a taking has occurred. (*Penn Central Transp. Co. v. New York City*, 438 U.S. 104 (1978). The *Penn Central* factors of significance are: "(i) economic impact

of the regulation on the claimant, (ii) the extent to which the regulation interfered with investment backed expectations; and (iii) the character of governmental action." (*Frick v. City of Salina*, 290 Kan. 869, 886 (2010) citing *Penn Central Transp. Co. v. New York City*, 438 U.S. 104 at 124, 98 S.Ct. 2646.)

103. Without access to available quality water the value of land and other property held in the basin storage area will be damaged. Irrigated land in the region is generally worth 2-3 times the value of non-irrigated land. Land owners have invested significant amounts in land, wells irrigation equipment and other inputs. Without available quality water these investments will be lost. An uncertain or unreliable water supply has a significant negative impact on the value of land and the homes or business in the area. The proposed changes are especially dangerous for domestic water users, without water, residents will be forced to relocate and purchase new homes where treated water is available or implement a rural water district. Additionally, livestock need water to survive and will similarly have to be sold or moved out of the Equus Beds. This will have a significant negative economic effect to the people and communities currently dependent on the Equus Beds.

104. The appropriation of water rights in 2021 after denying other new applications for water rights have been discouraged and denied in the central well field area due to safe yield since the 1980s. The economic impact and opportunity cost of not putting water to Beneficial Use is significant to the individuals seeking such appropriations and also the entire state economy. Irrigators have lost the ability to grow certain crops, decreased yields and decreased land values due to unavailability of water rights. If the City and DWR are correct and additional water, up to 120,000 acre-feet, can now be sustainably

withdrawn from the central well field area at the rate of 18,000 acre-feet annually all previously denied applicants must be considered.

105. The quality and quantity of water in the Equus Beds are both important to water right holders and users. A water right has little to no value if there is not quality water available.

106. The evidence presented by GMD2 and the Intervenors suggests the proposed modifications will have a negative impact to the overall quality of water in the basin storage area and also decrease the availability of water. Water users could face the burden of lowering wells to reach water, water treatment to remove contaminants, increased cost to pump water from lowered levels or be forced to relocate to an area with available, non-contaminated water.

107. Water right holders and domestic water users face additional expenses to lower wells to reach available, usable quality water, expenses to repair and protect against chloride damage, treat water to manage water quality and other potential expenses to address unanalyzed impacts of the City's proposed modifications. Water users also face the risk of water not being available due to clay layers and other factors impacting the practical saturated thickness rather than being able to rely on average saturated thickness across a 2 mile by 2 mile index cell.

108. The City's proposal does not provide water right holders and domestic water users notice of the timing or extent the aquifer levels will be lowered, or water quality will be impacted necessitating expenses to be incurred in advance to minimize risk of being without access to usable water.

109. Individuals in the Basin Storage Area have invested in land, homes, business, equipment, etc. based on the availability of water for either domestic uses or approved beneficial uses pursuant to water rights.

110. The character of the action is application of Division of Water Resources Rules and Regulations to create a fictitious recharge credit for water not pumped in order to accelerate and simplify the rate at which the City can accumulate recharge credits. The second aspect of the modifications is to allow the City to withdraw recharge credits below the expressly stated minimum index levels included with each approval. The City proposes such government action is necessary in order for the City to prepare for a severe drought with a 1% probability of occurring.

111. Neither the City nor Division have demonstrated that principles of justice and fairness require such economic injuries and hardships be borne by other water users in the basin storage area for the exclusive benefit of the City of Wichita Water Utility and its customers.

IX. Tailored Modeling and Proposal Errors falls short of Due Process

112. The Due Process clause of the Fourteenth Amendment also requires the government to act with adequate and fair procedures when depriving a person of life, liberty or property. A Proposal filled with errors from 110% full condition at Cheney, to the quantity of water being diverted from the Equus Beds in Table 2-5 to the inaccurate contingencies in Table 2-10 fails to give water users adequate notice of the proposed changes and the ability to determine the extent their property rights will be impacted. Mistakes and typos happen; however, these errors were brought to the City's attention and not corrected.

113. The modeling and data provided by the City reflects only a single hypothetical pumping scenario (Table 2-5) which is fraction of the pumping allowed if the modifications are approved. Further analysis is needed, including a scenario where the City pumps the full quantity of water allowed by the AMCs, to evaluate the potential impact of the proposed modifications and assess the impact to public interest.

114. The 1998 starting condition selected by the City is not particularly meaningful for water planning. Considering only changes to the aquifer based on a single point in time when we are planning for an event with a 1% probability of happening falls short of reasonable analysis of the potential negative impacts caused by the proposed changes.

115. If the City and the Division of Water Resources are now of the opinion that water is available for appropriation, in compliance with safe yield requirements the opportunity should first be offered to those applicants previously denied due to safe yield regulations. It has been commonly known for decades that in the area of the City of Wichita's Equus Beds Well Field ("EBWF") that new appropriations will be denied due to safe yield. Many applicants have been denied or discouraged from submitting an application for it be denied due to safe yield. The City's application seeks the ability to withdraw up to 120,000 acre-feet of water from the same over appropriated area. If water is available in the aquifer to appropriate without conducting any physical recharge or injecting water into the aquifer there are a lot of landowners who have missed out on wealth over the years of being told there isn't water available or having applications denied. 120,000 acre-feet is a lot of water and would operate a lot of pivots. (Hearing Transcript

Vol. III, Carp, p. 3395, ll. 9-21. Due process demands that new appropriations be available to all and not exclusively available to the City.

X. The City failed to meet its Burden of Proof

116. The City has the burden to show "by a preponderance of the evidence that the proposed changes to the project should be approved." "The proposed changes must meet the requirements set forth in Aquifer Storage and Recovery projects in K.A.R. 5-12-1 et al. and the requirements set forth in K.S.A. 82a-708b, including the proposed changes are reasonable and will not cause impairment and that the proposed changes relate to the same local source of supply. Whether or not a change is reasonable should consider the affect upon the public interest." The City failed to demonstrate AMCs meet the requirements of ASR, that the proposed changes are reasonable, related to the same source of supply or are in the public interest.

XI. Conclusion

117. The City and DWR advocate in favor of the Proposal and describe the changes as being in the public interest because it maintains a fuller aquifer. Due to the size of the City's appropriations the City currently and will continue to have the ability to significantly influence the fullness of the aquifer. The proposed modifications simplify and greatly accelerate the City's ability to accumulate recharge credits without any obligation to recharge the aquifer. The proposed changes do not guarantee a fuller aquifer; they give the City more power, influence and control over the aquifer. The City retains full discretion on when and where they withdraw water. Multiple permit conditions would be required to protect the public interest with more than an illusory promise to maintain a

full aquifer. It is not in the public interest to gamble such a critical resource on an unenforceable promise.

118. The proposal and hearing testimony present a false dilemma. The City is not limited to only the two options presented: (a) intentionally draw the aquifer down to accumulate credits or (b) the approval of this proposal for AMCs. The City has many alternative options available to satisfy its desire to secure water in the event of a 1% drought. (City Ex. 9, Strategic Plan; Hearing Transcript Vol. I, Pajor, p. 157, l. 6-12.) The City is not being forced to do anything. The City designed and implemented the ASR program and now wants to repurpose ASR for drought supply with Equus Beds water right holders bearing the burden and cost.

119. The City's promise to manage the aquifer full only lasts until the City decides to change direction or repurpose the project. In 1993 the City implemented the ILWSP to preserve the Equus Beds and utilize Cheney, that lasted until April 2018 when the City decided to make space in the aquifer. From 1997-1999 the City applied for and received additional rights in Cheney Reservoir promising a concurrent reduction in water pumped from the Equus Beds[7] [8], that promise ended in 2018 and with this Proposal. From 2003-2008 the City promised to implement ASR in order to slow chloride migration but now wants ASR as water supply. With both Phase I and Phase II the City signed MOUs

[7] April 14, 1997 letter from Chief Engineer David Pope to David Warren with the City of Wichita: "In your letter of April 1, 1997, you discussed the proposed diversion of an additional quantity of water from Cheney Reservoir and the **concurrent reduction in the quantity of water taken from other sources** of supply. You also indicated that the City did not consider the required filing fee as appropriate, because there would not be any additional quantity of water, above that already authorized. I have reviewed the application with the staff and found that in Attachment No. 2 it is stated that the requested quantity of 36,000 acre-feet of water, is in addition to the 52,638 acre-feet of water already authorized to be diverted from Cheney Reservoir. I understand that the 36,000 acre-feet of water will be used to **reduce the quantity pumped from the Equus Beds** and provide an additional tool for the management of the total water supply system for the City of Wichita…" *emphasis supplied.* See Permit 42,824

[8] Letter dated October 27, 1999 from Mr. Gerald Blain on behalf of the City to the Division of Water resources regarding application file no 42,824. "Enclosed you will find a Notice and Proof of Completion of Works for permit 42,824. This permit gave the City the opportunity to withdraw more water from Cheney Reservoir during periods of high surface water flows, while **reducing its usage from the Equus Beds Wellfield**." *Emphasis supplied.*

agreeing to the minimum index levels which they now seek to change. A mere promise to manage the aquifer full is not something that can or should be relied upon in approving the proposed changes.

120. The bottom of the basin storage area should not be lowered as proposed by the City. Chloride contamination is a real threat to water quality which would have disastrous consequences for Kansans. The ASR accounting methodology should not be modified to allow the accumulation of AMCs. Again, the Orders approving Phase I and Phase II of the ASR project have repeatedly emphasized that passive credits are not allowed. The Proposal bypasses the provided regulatory process available to acquire a right to use water from the aquifer in order to seek a credit for water not pumped to be used for speculative purposes rather than an approved beneficial use. The City's ASR permit modification proposal, Revised Minimum Index Levels & Aquifer Maintenance Credits should be denied.

Respectfully submitted,

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CERTIFICATE OF FILING AND SERVICE

The undersigned hereby certifies that she transmitted the above and foregoing Intervenors' Proposed Findings of Facts and Conclusions of Law by electronic mail on this 30th day of July, 2021, for filing, to ConnieOwen@everestkc.net and served the same upon counsel for the other parties herein by electronic mail, this 30th day of July, 2021 addressed to:

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