ELECTRONICALLY FILED
2019 Dec 06 PM 11:46
CLERK OF THE EDWARDS COUNTY DISTRICT COURT
CASE NUMBER: 2019-CV-000005

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IN THE 24TH JUDICIAL DISTRICT
DISTRICT COURT OF EDWARDS COUNTY, KANSAS

WATER PROTECTION ASS'N OF CENTRAL KANSAS, *Plaintiff,* *v.* DAVID BARFIELD, P.E., IN HIS OFFICIAL CAPACITY AS CHIEF ENGINEER, DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, *Defendant,* *v.* THE CITY OF HAYS, KANSAS AND THE CITY OF RUSSELL, KANSAS, *Intervenors.*	Case No. 2019-CV-000005

Pursuant to K.S.A. Chapter 77

THE CITIES' RESPONSE TO WATERPACK'S MOTION FOR DISCOVERY

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Introduction

Time is not a luxury the Cities can afford. Hays and Russell need a new source of water. Their current sources are inadequate during a drought and the next drought is on its way—we just don't know when it will arrive.

The R9 Ranch will provide a long-term, sustainable, and reliable source of water. But first, the Cities must comply with the Kansas Water Transfer Act[1] ("WTA") and regulations. That meant obtaining "contingently approved" applications to change the type of use, place of use, and points of diversion for the R9 Water Rights.[2] Hence the Master Order and the attached change approvals.

The Cities filed their Change Applications on June 26, 2015, almost 4.5 years ago. Now the water transfer is on hold until this judicial review proceeding concludes.

[1] K.S.A. 82a-1501, *et seq*.

[2] K.A.R. 5-50-2(x) and 5-50-7.

The WTA places minimum and maximum time limits on each stage of the water transfer proceeding,[3] so once a presiding officer is appointed, the proceeding is very unlikely to conclude in fewer than 18 months.[4]

Then there's the potential for judicial review of the Transfer Panel's Transfer Order.

The WTA states that judicial review proceedings "shall have precedence" in the district and appellate courts, but even an aggressive briefing schedule could require 18 to 21 months or longer at each level—district court, court of appeals, and Supreme Court.[5]

Finally, estimates range from 3 to 5.5 years after the Cities have a final non-appealable order approving the transfer before the system will provide water to the Cities. Those steps include:

- Design of the municipal wells, the collection system, a pump station on the R9 Ranch, the pipeline, and related infrastructure.
- Obtaining permits and approvals for road, railroad, pipeline, and stream crossings.
- Obtaining easements and rights-of-way as needed.
- Obtaining project financing.
- Obtaining KDHE approval and permits for the infrastructure.
- Bidding and construction.

[3] K.S.A. 82a-1503(b) and 82a-1504(b).

[4] K.S.A. 82a-1501a(a).

[5] K.S.A. 82a-1505(b).

Facing at least 5 and up to 20 years before seeing the first drop makes the prospect of an intervening drought a practical certainty. Little wonder the Cities' elected officials were eager for the Chief Engineer to issue the Master Order. *See* the additional news articles explaining that City officials were frustrated at the slow progress.[6]

Water PACK's request for additional discovery serves no practical purpose. Additional evidence isn't helpful when the KJRA limits the Court's inquiry. "In reviewing the evidence in light of the record as a whole, ***the court shall not reweigh the evidence or engage in de novo review***."[7]

Statement of Facts

The R9 Ranch and the Project

1. The "R9 Ranch" is a large farm in Edwards County, Kansas, depicted in the Master Order, Exhibit 33.[8] The legal description of the R9 Ranch is provided in the Master Order, Appendix A.[9]

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[6] Ex. 1. (To be fair, some comments are based on misunderstandings about statements that the Master Order would be issued by "Friday.")

[7] K.S.A. 77-621(d) (emphasis added).

[8] R. 62, ¶ 17, and 297.

[9] R. 62, ¶ 17, and 111-112.

2. The City of Hays purchased the R9 Ranch and its appurtenant water rights on January 30, 1995,[10] and on August 10, 1995,[11] conveyed an undivided 18% of the Ranch to the City of Russell.[12]

3. There are 32 "R9 Water Rights,"[13] which are "existing, certified water appropriation rights[14] with points of diversion on the R9 Ranch."[15]

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[10] Ex. 2, 1995-01-30 Warranty Deed R-9 Ranch to City of Hays.

[11] Ex. 3, 1995-08-10 Warranty Deed from Hays to Russell.

[12] The deeds are not part of the Agency Record but are public records filed with the Edwards County Register of Deeds on the dates shown on the Deeds. They are not directly relevant to the issues in the case but are provided to address Water PACK's concern about apparent discrepancies in the Agency Record about the year in which the R9 Ranch was purchased. *See* Water PACK Supplemental Brief, p. 2, ¶ 2,

[13] R. 62.

[14] The Kansas Water Appropriation Act, K.S.A. 82a-701, *et seq*., defines the terms "water right" and "appropriation right" as follows:

> "Appropriation right" is a right, acquired under the provisions of article 7 of chapter 82a of the Kansas Statutes Annotated and amendments thereto, to divert from a definite water supply a specific quantity of water at a specific rate of diversion, provided such water is available in excess of the requirements of all vested rights that relate to such supply and all appropriation rights of earlier date that relate to such supply, and to apply such water to a specific beneficial use or uses in preference to all appropriations right of later date.
>
> "Water right" means any vested right or appropriation right under which a person may lawfully divert and use water. It is a real property right appurtenant to and severable from the land on or in connection with which the water is used and such water right passes as an appurtenance with a conveyance of the land by deed, lease, mortgage, will, or other disposal, or by inheritance.

K.S.A. 82a-701(f) and (g).

[15] R. 62.

4. The Cities purchased the R9 Ranch and the appurtenant water rights[16] because they needed an additional source of water to meet their future, long-term needs because existing sources are insufficient during droughts, projected population increases, and other regional water needs.[17]

5. The reasons the Cities need access to alternative sources are explained in greater detail in a June 25, 2015 letter to the Chief Engineer.[18]

6. The Kansas Water Appropriation Act[19] ("KWAA") permits the owner of an existing water right to change the place of use, the point of diversion, or the use made of the water without losing priority of right by filing a "change application" which must be approved by the Chief Engineer.[20]

7. The Cities' "Project" will consist of 14 new municipal wells drilled on the R9 Ranch,[21] as shown on Master Order, Exhibit 33,[22] and a pipeline to

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[16] *See* K.S.A. 82a-701(g), quoted above, stating that water rights are appurtenant to and severable from the authorized place of use and they pass as appurtenances with a conveyance of the land.

[17] R. 65, ¶ 44.

[18] R. 1542-1571 at 1549-1564.

[19] K.S.A. 82a-701, *et seq.*

[20] K.S.A. 82a-708b(a).

[21] R. 62, ¶ 17; 66, ¶ 52. c.

[22] R. 297.

transport water to Hays and Russell for municipal use.[23]

8. The Cities intend to develop and operate the new municipal wellfield on the R9 Ranch in a sustainable manner that maintains the resource as a viable, long-term water supply.[24]

The Water Transfer Act

9. The Kansas Water Transfer Act[25] ("WTA") defines the term "water transfer" as "the diversion and transportation of water in a quantity of 2,000 acre-feet or more per year for beneficial use at a point of use outside a 35-mile radius from the point of diversion of such water."[26]

10. Hays and Russell seek to move more than 2,000 acre-feet of water per year from the R9 Ranch to Hays and Russell[27] and both Cities are more than 35 miles from the R9 Ranch.[28]

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[23] R. 666, 1544, 1577-1579.

[24] R. 347.

[25] K.S.A. 82a-1501, *et seq*.

[26] K.S.A. 82a-1051(a)(1).

[27] R. 56; 65, ¶¶ 45 and 48; 796; and 831.

[28] R. 56, 796, 831, and 962.

11. The WTA prohibits all water transfers "unless and until" approved[29] by the "water transfer hearing panel" made up of the Chief Engineer of the Division of Water Resources of the Kansas Department of Agriculture; the Director of the Kansas Water Office; and the Secretary of the Department of Health and Environment, or the Director of the Division of Environment if designated by the Secretary.[30]

12. The WTA directs the Chief Engineer to adopt rules and regulations "necessary to effectuate and administer the provisions of this act."[31]

13. To obtain approval of a Water Transfer, one must file a "complete" application in the form required by the Chief Engineer's regulations.[32] The WTA process is triggered when the Chief Engineer finds that a water transfer application is "complete."[33]

14. To be complete, a water transfer application must provide

[29] K.S.A. 82a-1502; R. 65, ¶ 45;

[30] K.S.A. 82a-1501a(a) and K.S.A. 82a-1501(d), (e), and (f).

[31] K.S.A. 82a-1506. *See also*, K.S.A. 82a-1502(a)(3) and K.S.A. 82a-1503(a). *See* K.A.R. 5-50-1, *et seq*.

[32] K.S.A. 82a-1503(a).

[33] K.S.A. 82a-1501a(b)(1).

information on each of 27 separately listed topics.[34] Subsection (x) requires the applicant to obtain the following "contingently approved documents":[35]

> (x) a copy of the following ***contingently approved*** documents;
>
> (1) a permit to appropriate water;[36]
>
> (2) an application for change in any or all of the following:
>
> (A) the place of use;
>
> (B) the type of use;
>
> (C) point of diversion;[37] or
>
> (3) a contract to purchase water pursuant to the state water plan storage act;[38]

15. Without one of these sets of documents, or the Chief Engineer's waiver of the requirement,[39] a transfer proceeding cannot begin.[40]

16. Evidence of the importance of these contingently approved documents is found in a subsequent regulation that imposes the same requirement.

> **K.A.R. 5-50-7. Filing an application.** Unless this requirement is waived by the chief engineer for good cause, a water transfer application shall not be considered complete until one of the

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[34] K.A.R. 5-50-2(a) – (z).

[35] K.A.R. 5-50-2(x) (emphasis added).

[36] Subsection (x)(1) does not apply because it contemplates water transfers from new water appropriation rights instead of existing rights.

[37] As mentioned above, these changes are permitted by K.S.A. 82a-708b(a).

[38] Subsection (x)(3) contemplates water transfers from water in storage in federal reservoirs under reservation rights held by the Kansas Water Office and does not apply.

[39] K.A.R. 5-50-7, quoted in full below.

[40] K.A.R. 5-50-2(x).

following has been approved ***contingent upon*** receiving a permit to transfer water:

> (a) a new application to appropriate water pursuant to the Kansas water appropriation act (KWAA), K.S.A. 82a-701 *et seq*.;
>
> (b) an application for a change in any or all of the following:
>
> (1) point of diversion;
>
> (2) place of use; or
>
> (3) use made of water filed pursuant to the KWAA; or
>
> (c) a contract for the purchase of water pursuant to the state water plan storage act, K.S.A. 82a-1301, *et seq*.[41]

The Cities' Change Applications

17. To comply with K.A.R. 5-50-2(x) and 5-50-7, the Cities filed Change Applications on June 26, 2015,[42] not June 26, 2016, as Water PACK asserts.[43]

18. The Cities filed their initial Transfer Application about 6 months later, on January 6, 2016.[44]

19. The Transfer Application was incomplete when filed because the

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[41] K.A.R. 5-50-7 (emphasis added).

[42] R. 61, ¶4 and 65, ¶ 47.

[43] Supplemental Brief, p. 2, ¶ 3. *See, e.g.*, R. 1588.

[44] R. 63, ¶ 25. While the fact that the Cities have filed a Transfer Application is important, the content of the Application may not be directly relevant. Nevertheless, the Water Transfer Application and Exhibits filed on January 6, 2016, and the First Amended Transfer Application and Exhibits filed on May 20, 2019, are available at the following website: https://agriculture.ks.gov/HaysRussellTransfer.

Change Applications had not been contingently approved by the Chief Engineer as required by K.A.R. 5-50-2(x)(2)(A)–(C) and K.A.R. 5-50-7(b)(1)–(3).[45]

20. The June 25, 2015 cover letter[46] transmitting the Change Applications raised a number of concerns including the potential catastrophic loss in property value that could occur based on the holding in *Wheatland Elec. Co-op., Inc. v. Polansky*.[47]

21. Water PACK acknowledges that the Water Transfer Act is implicated in this case.[48]

22. The Legislature had the KWAA in mind when it enacted the WTA because the Act acknowledges that the potential sources of water for a transfer include (1) ***new*** water rights; (2) ***existing*** water rights (in which applications to change existing water rights pursuant to the KWAA would be required); and (3) water from the state's conservation storage water supply capacity.[49]

23. The Legislature specifically stated that the WTA does not "exempt

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[45] R. 66, ¶ 49.

[46] R. 1542-1571.

[47] 46 Kan. App. 2d 746, 265 P. 3d 1194 (2011), review denied, May 20, 2013.

[48] Petition, ¶¶ 13. d. and 13. d. i.; ¶ 20; ¶ 28; Prayer for Relief; and Supplemental Brief, pp. 5 and 11.

[49] K.S.A. 82a-1501a(b)(2).

the applicant from ***first complying*** with the provisions of" the KWAA.[50]

24. Thus, other than water in the state's conservation storage water supply[51] or from a source outside of the state, any source of water for a transfer would require either a new permit or an approved change application.[52]

25. When the Legislature directed the Chief Engineer to adopt rules and regulations "necessary to effectuate and administer the provisions of this act," it knew or should have known that the regulations would deal with the interaction between and reconciliation of the WTA and the KWAA.[53]

26. When the water transfer regulations were amended in 1996, the then-Chief Engineer recognized the legal and practical problems for prospective

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[50] K.S.A. 82a-1507(b)(2) (emphasis added).

[51] The State Water Plan Storage Act, K.S.A. 82a-1301 through 82a-1320, allows the Director of the Kansas Water Office to acquire "water reservation rights" to divert and store surface water flowing into any of the reservoirs in which the state controls storage space under contracts with the federal government. The Director can, in turn, enter into contracts under the Kansas Water Marketing Program to allow purchasers to withdraw and use water in storage.

[52] K.S.A. 82a-702 (stating that "***all water*** within the state of Kansas is . . . subject to the control and regulation of the state." (emphasis added)); K.S.A. 82a-728 (stating that it is "unlawful for ***any person*** to appropriate or threaten to appropriate water from ***any source*** without first applying for and obtaining a permit to appropriate water." (emphasis added)).

[53] K.S.A. 82a-1506.

transfer applicants if new permits[54] or orders approving change applications were not contingent on approval of a transfer. The principal problem arises if the transfer is denied. The applicant's water right would have an approved point of diversion more than 35 miles away from the approved place of use, and all water transfers must be approved by the panel.[55]

27. Even if the transfer is approved, a project can be sidelined by problems with financing, right-of-way acquisition, infrastructure design and construction, and other issues.

28. If the Cities' Transfer Application is denied, or other problems arise that render the Project unworkable, a thumbs-up-thumbs-down order changing the R9 Water Rights from irrigation to municipal use and the place of use from the R9 Ranch to Hays and Russell would render the R9 Water Rights valueless.

The Master Order

29. On December 4, 2016, the undersigned, counsel for the City of Hays, sent a draft "Initial Order" to David Barfield and members of his staff that

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[54] The Water Transfer Regulations were first adopted in 1984 and covered less than a complete page in the Kansas Register. *See* Ex. 4. The regulations in their current form were adopted on December 27, 1996. By 1996, transferring water from a new water right would have been foolhardy.

[55] K.S.A. 82a-1502(a).

included the Cities' suggested terms and conditions. Thereafter, the Chief Engineer's lawyer made substantial changes, including changing the title from "Initial Order" to "Master Order," and maintained control of the document throughout the Change Order proceeding.[56]

30. Amended Change Applications were filed on November 26, 2016.[57]

31. Between December 4, 2016, and May 4, 2018, DWR and the Cities worked through numerous issues and made changes to the proposed Master Order.[58]

32. Water PACK incorrectly asserts that the Chief Engineer's May 4, 2018 DRAFT Master Order, "assumed approval of the Cities' amended change applications."[59]

33. In a February 19, 2018 letter to the Big Bend Groundwater

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[56] During a conference call among counsel on Tuesday, November 5, 2019, counsel for the City of Hays made a statement that was incomplete or that created the inaccurate impression that he was the principle or only draftsman of the entire Master Order. Moreover, Water PACK incorrectly identifies counsel for the City of Hays as "Counsel for the Cities." For clarification, the City of Hays is represented by Glassman Bird and Powell, LLP and Foulston Siefkin LLP. The City of Russell is represented by Woelk & Cole. The Cities do not have joint counsel.

[57] Supplemental Brief, p. 2, ¶ 4; R. 1316-1541.

[58] R. 67-68, ¶ 56-57.

[59] Supplemental Brief, p. 2, ¶ 5; p. 12.

Management District #5 ("GMD5") and Water PACK, the Chief Engineer transmitted the BMcD modeling report. At the end of the letter he stated:

> ***No decision about the Cities' proposed change applications has been made*** and we will continue conferring with the Cities to narrow the issues for eventual public review. We wanted to give you ample time, however, to review the modeling that the Cities have provided in justification for their requested changes.[60]

34. On May 4, 2018, the Chief Engineer sent the Draft Proposed Master Order, the individual approvals, and a letter to the Chief Engineer expressing the Cities' support[61] to GMD5 with copies to Water PACK and others.[62] The letter notes that the Change Applications and related documents were posted on the DWR web page[63] that provides extensive information about the Project and DWR processes.[64]

35. The cover letter transmitting the DRAFT Master Order clearly states

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[60] R. 636 (emphasis added).

[61] R. 633-634.

[62] R. 394-395.

[63] R. 394-395. http://www.agriculture.ks.gov/HaysR9.

[64] R. 305, 393. In fact, the Change Applications and related documents were available for review on the DWR web site since April of 2016. *See*, https://web.archive.org/web/20160603113247/http://agriculture.ks.gov/divisions-programs/dwr/water-appropriation/change-applications/hays-change-and-water-transfer.

that the Chief Engineer was reserving judgment on the Cities' applications:

> These draft orders are the result of the Cities working with DWR to come up with ***potential workable documents*** acceptable to the Chief Engineer and the Cities (see the attached letter of support from the Cities). Nevertheless, ***these are only draft proposed documents and I have made no official decision about any of the issues***.[65]

36. At the June 19, 2018 public meeting the Chief Engineer made it clear that while he was "pretty comfortable" that the terms in the Master Order were reasonable, he had not made any firm decisions.[66]

37. The Chief Engineer's May 4, 2018 letter goes on:

> On February 19, 2018, I provided notice of our posting on our web site a modeling report and associated data supporting these pending change applications, for your review.
>
> Next week, the originally filed change applications currently posted on our web site will be replaced with the versions that the Cities have subsequently amended. Regardless, such amended change applications do not yet fully conform to the draft proposed master order and change approvals, because the Cities have agreed to make various revisions, principally the reduction of requested rates and/or quantities. Where there is a conflict between any request of the current change applications and a term of the draft proposed orders, the terms of the draft proposed orders should be viewed as controlling. ***As explained in their letter attached, the Cities plan to later amend the change applications to fully confirm to these draft proposed orders.***[67]

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[65] R. 394 (emphasis added).

[66] R. 795, 801, 817, 837, 912, and 917.

[67] R. 394-395 (emphasis added).

38. The Cities' letter of support confirmed the Chief Engineers' statement that the Master Order was not yet final, acknowledged that new issues and concerns could arise during the review by GMD5 and the public, and confirmed the Cities' intent to amend the Change Applications to conform to the final version of the Master Order. If the May 4, 2018, version was in the bag, the amendments could have been made at that time. The letter stated:

> While the Master Order is ***still a working draft*** there has been give and take on both sides resulting in a carefully balanced and interrelated set of terms and conditions. The Cities believe that the current version of the Draft Master Order, taken as a whole, is reasonable and will provide them with a reliable source of high-quality water that will serve their needs for many years without adversely affecting our neighbors in Edwards County and the surrounding areas.
>
> The Cities have agreed to reduce the quantities that were originally requested ***and will continue to work with you and your staff to resolve any issues or concerns that arise during the review by GMDS and the public.***
>
> ***When we have a final version of the Master Order, the Cities will amend the Change Applications as appropriate***. We are maintaining an ongoing list of minor changes that need to be made to individual Change Applications and there are a few changes that need to be made to all of them.[68]

39. On March 25, 2019, pursuant to the Chief Engineer's request, the

[68] R. 633-634.

Cities served their second amended Change Applications to conform to the final version of the Master Order.[69]

Consumptive Use and the Ten-Year Rolling Average Limitation

40. DWR regulations prohibit approval of change applications that increase the "net consumptive use" from the local source of supply.[70]

41. Consumptive use is calculated by subtracting the quantity of water that returns to the source via deep percolation and surface runoff from the gross quantity diverted.[71]

42. DWR regulations set out the method to calculate the net consumptive use. In this case, the 1994 version of K.A.R. 5-5-9 was used because the Change Applications were filed before the regulation was amended in 2017.[72]

43. After extensive discussion with the Chief Engineer, the Cities agreed to reduce the total quantity to be changed from irrigation to municipal use from 7,625.7 acre-feet to 6,756.8 acre-feet of water per calendar year as long as the

[69] R. 1014-1315.

[70] R. 64, ¶¶ 35-37; R. 71, ¶¶ 71 and 72; K.A.R. 5-5-3; and K.A.R. 5-5-9(a) (1994 version) at R. 118-119.

[71] K.A.R. 5-5-8(c).

[72] R. 67, ¶ 53; R. 118-119.

"Master Order and its incorporated Change Approvals are issued and become final orders on the exact terms as originally issued on March 27, 2019, or on amended terms that are acceptable to the Cities."[73] Because Water PACK has challenged the Master Order, it is not a final order.

44. The Chief Engineer decided to impose further reductions on the quantity that the Cities could divert from the R9 Ranch and imposed the "Ten-Year Rolling Aggregate Limitation" ("TYRA Limitation") over the Cities' initial objections.[74]

45. Relating to the TYRA Limitation, during the June 21, 2018 public meeting, the Chief Engineer said, "This is—this is not—***this is not in our rules. This is not a normal provision.*** Normally, the consumptive use [quantity determined as provided in K.A.R. 5-5-9] is the number."[75]

46. The TYRA Limitation reduces the quantity that the Cities can divert from the R9 Ranch from 6,756.8 acre-feet of water per calendar year calculated using the regulation that applies to every other change application in the state

[73] R. 66, ¶ 51; R. 633-634.

[74] R. 677-678.

[75] R. 819-820, incorrectly attributed to "MR. TREYSTER" at R. 815. (Emphasis added.)

(including Water PACK's members, who are generally irrigators), to 4,800 acre-feet per year on a ten-year rolling average basis.[76]

47. The Cities had numerous concerns about the reductions, including fear that the reduction to 6,756.8 acre-feet and the additional reduction imposed by the Ten-Year Rolling Aggregate Limitation would become new starting points for further reductions.[77] That is exactly what has happened.[78]

48. The Cities asserted that the Chief Engineer had no authority to reduce the quantity over and above the reduction to 6,756.8 acre-feet authorized by KA.R. 5-5-9. But the Cities finally decided to capitulate so long as they could litigate the Chief Engineer's authority to impose the TYRA Limitation under certain conditions (such as a Petition for Judicial Review of the Master Order). The debate about those conditions was long and difficult but the Cities again capitulated and all of the conditions except those in ¶ 51 were removed.[79]

The Contingencies

49. The Master Order does not become effective unless and until a

[76] R. 76, ¶96.

[77] R. 677.

[78] *See*, *e.g.*, R. 731, 777, 781, 900-901, 968

[79] R. 677-678.

Transfer Order is issued as required by the Water Transfer Act and the City of Hays enters into a written contract to drill 1 or more of the 14 proposed municipal wells.[80] The contingencies are found in the Master Order, Section XXI, "Effective Date and Expiration Date," paragraphs 253 and 254 and read as follows:[81]

> 253. The Cities filed the Change Applications in anticipation of a water transfer pursuant to K.S.A. 82a-1501, *et seq*., and K.A.R. 5-50-1, *et seq.* Pursuant to K.A.R. 5-50-2(x) and K.A.R. 5-50-7, the terms and conditions of this Master Order (including its incorporated Change Approvals) remain contingent and conditioned upon, and will not become effective unless and until, such time as when both of the following may have occurred:
>
> a. the transfer panel issues a Transfer Order approving a transfer of water pursuant to the Kansas Water Transfer Act, K.S.A. 82a-1501, *et seq*., and the Transfer Order becomes a final, non-appealable order under the KAPA and the KJRA; and
>
> b. DWR receives written notice from Hays that Hays has entered into a written construction contract to drill one or more of the 14 proposed municipal wells (excluding test drilling) for the Project, which notice, along with a copy of the contract, Hays must provide to DWR within thirty (30) business days after the contract is fully executed.
>
> 254. If by December 31, 2029, or any authorized extension thereof granted by the Chief Engineer in writing and for good cause shown, either of the following has occurred, then as of the date of such occurrence, this Master Order (including its incorporated Change

[80] R. 107-108.

[81] R. 107-108.

Approvals) shall expire and be null and void and of no further force or effect and the R9 Water Rights shall retain the characteristics set out in their respective certificates of appropriation and approved changes, if any, that predate the issuance of this Master Order:

a. this Master Order has not become effective under the preceding paragraph; or

b. the Cities have abandoned the Project by providing the Chief Engineer with a duly authorized Resolution by the Hays City Commission and a duly authorized Resolution by the Russell City Council.

The Groundwater Model

50. Water PACK notes that the following computer models, as distinguished from reported model runs, are not included in the Agency Record:[82]

a. the Big Bend Groundwater Management District No. 5 Hydrologic Model prepared by Balleau Ground Water Inc. (the "GMD5 Model").[83]

b. Modifications to the model by Burns and McDonnell ("BMcD"), the Cities' consultant.[84]

51. The GMD5 Model covers the entire groundwater management

[82] Supplemental Brief, p. 3, ¶ 12.

[83] Supplemental Brief, p. 3, ¶ 12(a).

[84] Supplemental Brief, p. 3, ¶ 12(b).

district, "a 3,947 square-mile area of all or parts of eight counties around the Great Bend Prairie of south-central Kansas."[85] In addition, the GMD5 Model covers a substantial area, both up-gradient and down-gradient, of GMD5, including all or parts of 23 Kansas counties.[86] In all, the GMD5 Model covers 12,182 ***square miles*** over an area 160 miles from east to west and 90 miles from north to south.[87]

52. The R9 Ranch is a tiny fraction of the area encompassed by the GMD5 Model covering just 6,900 acres—less than 1% of the area covered by the GMD5 Model.[88]

53. BMcD used the GMD5 groundwater model files to run seven different model runs focused on the area on and around the R9 Ranch, quantifying the long- and short-term sustainable yield of the R9 Water Rights as a municipal water source under a variety of scenarios.[89] BMcD's 30-page report,

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[85] R. 3249.

[86] R. 3250. *See also* R. 3372 (Figure 2 from the Balleau Model showing the area covered by the Balleau Model).

[87] *See* the maps at R. 3371 and following.

[88] R. 347. *See also* R. 364 (Figure 1 from the BMcD Model showing the R9 Ranch area and location within the total area covered by the Balleau Model).

[89] Ex. 5 (Email from BMcD Model author, Paul McCormick) (Nov. 21, 2019); Ex. 6 (Mr. McCormick's Model Files Summary attached to November 21 email).

titled *R9 Ranch Modeling Results* ("BMcD's Report"), is a detailed explanation and evaluation of those model runs and BMcD's resulting conclusions.[90]

54. DWR had access to all of the model files and BMcD's groundwater model report and DWR's groundwater modelers, DWR's attorneys, DWR staff, and the Chief Engineer "carefully reviewed" the model files and BMcD's report.[91] In the end, DWR concurred with BMcD's methodology, evaluation, and conclusions.[92]

55. WaterPack and GMD5 were also given extensive opportunity to review the model files as well as BMcD's Report;[93] the Chief Engineer posted the BMcD Report on its website on February 16, 2018, and provided the model files to GMD5 and Richard Wenstrom with Water PACK on March 9, 2018.[94]

56. None of the model files are comprised of plain-English text that is

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[90] R. 345-375.

[91] *See, e.g.*, R. 67 at ¶ 55 and R. 70, at ¶ 65.

[92] *See, e.g.*, R. 69 (Master Order Approving the Change Applications stating that WaterPack's consultant provided a review of BMcD's modeling report); 3645-3646 (March 8, 2018 GMD 5 Board Minutes noting its approval to review BMcD's modeling work and allocate $16,000 to conduct the review. Wenstrom was present at the meeting. *Id.*).

[93] *See, e.g.*, *id.*

[94] Ex. 7 (Letter from Chief Engineer advising that he forwarded the Model Files to Wenstrom on March 9, 2018).

understandable by the lay person.[95] Performing, reviewing, and evaluating groundwater modeling requires extensive hydrological and engineering expertise.[96] It also requires the appropriate software to interpret and process the files, and adequate computer system resources to load, store, and compile the various iterations of the model.[97] Even trained hydrologists cannot use the files without the assistance of computers with appropriate software and adequate memory, storage, and processing power.[98]

57. As noted in BMcD's Report, quantifying the long-term yield of the R9 Ranch was accomplished with the GMD5 Model, which utilizes the United States Geological Survey's "MODFLOW 2000" three-dimensional groundwater flow modeling code.[99] To aid in the pre- and post-processing use of the model files, BMcD used Groundwater Vistas (v.6.0), a software program that provides a graphical user interface for streamlining data entry and processing results.[100]

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[95] Ex. 5 (Email from BMcD Model author, Paul McCormick) (Nov. 21, 2019); Ex. 6 (Mr. McCormick's Model Files Summary attached to November 21 email).

[96] *Id.*

[97] *Id.*

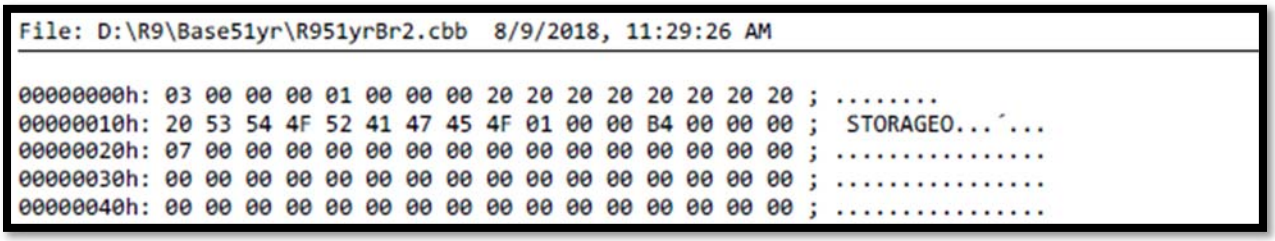
[98] *See id.*

[99] R. 348.

[100] R. 349.

58. Each model run requires 18 separate files with names like "R951yrBr2.nam."[101]

59. Some of the files are in binary or Base32 notation format and (for all intents and purposes) understandable only by a computer.[102] For example, the top few lines of file R951yrB42.cbb are:[103]



60. Other files are in plain text but are comprised entirely of code that would be gibberish to anyone not trained in computer-based groundwater modeling.[104] For example, the first few lines of file R951yrB42.wel are:[105]

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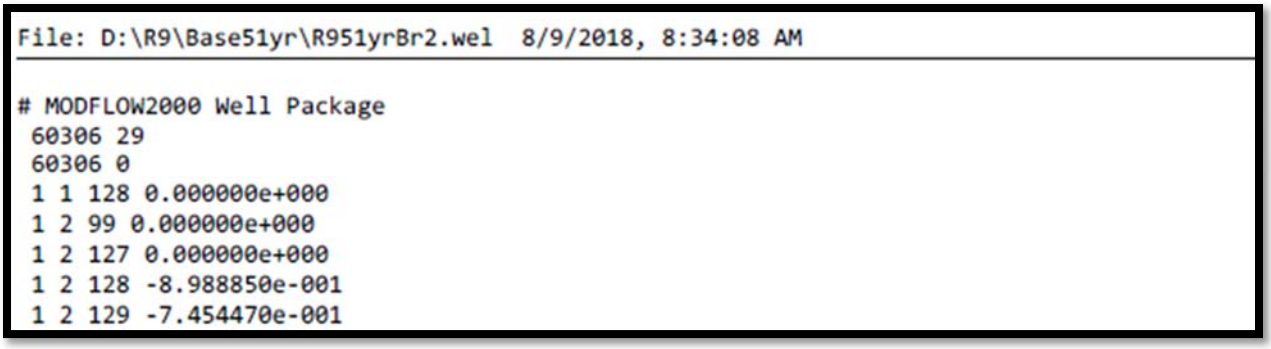
[101] Ex. 5 (Email from BMcD Model author, Paul McCormick) (Nov. 21, 2019); Ex. 6 (Mr. McCormick's Model Files Summary attached to November 21 email).

[102] Ex. 5 (Email from BMcD Model author, Paul McCormick) (Nov. 21, 2019); Ex. 6 (Mr. McCormick's Model Files Summary attached to November 21 email). *See also* https://www.ntu.edu.sg/home/ehchua/programming/java/DataRepresentation.html.

[103] Ex. 5 (Email from BMcD Model author, Paul McCormick) (Nov. 21, 2019); Ex. 6 (Mr. McCormick's Model Files Summary attached to November 21 email).

[104] *Id.*

[105] *Id.*



```
File: D:\R9\Base51yr\R951yrBr2.wel  8/9/2018, 8:34:08 AM

# MODFLOW2000 Well Package
 60306 29
 60306 0
 1 1 128 0.000000e+000
 1 2 99 0.000000e+000
 1 2 127 0.000000e+000
 1 2 128 -8.988850e-001
 1 2 129 -7.454470e-001
```

61. Moreover, the model files are huge; the file size for all 7 runs is nearly 120 gigabytes, more than 757 million lines of text, and is the equivalent of about 13.3 million printed pages.[106]

62. The Cities do not oppose it per se; but it is unclear what purpose would be served by including the model files in the Agency Record.

63. Water PACK also notes that the "Modifications to the . . . Model runs performed by BMcD,"[107] as distinguished from the modifications to the computer model itself, are not included in the Agency Record.[108] There is no indication that the modifications resulted in "model runs" or that model runs, if any, were provided to DWR. If they were not provided to DWR, there is no

[106] *Id.*

[107] Supplemental Brief, p. 3, ¶ 12(b).

[108] Supplemental Brief, p. 3, ¶ 12(b) citing R. 667.

reason to include them in the Agency Record.[109]

64. Water PACK states that modifications or model runs performed by Agency personnel as requested by the Chief Engineer are not included in the Agency Record citing R. 306.[110]

65. A report prepared by Sam Perkins entitled "DWR staff review of R9 Ranch pumping and water levels" begins on page 306. The report is Mr. Perkin's assessment of "select data provided via the process, including the review and analysis of local groundwater level data and GMD 5 model output." It appears that all of Mr. Perkin's work is provided and explained.

Water PACK was well informed

66. In a March 8, 2016 letter to counsel,[111] the Chief Engineer informed the Cities that the Change Applications and the proposed transfer were major topics at Water PACK's February 15, 2016 Annual Meeting, stating:

> The Hays change applications and proposed transfer were the focus of many of the audience's questions at the annual meeting of Water PACK in St. John on February 15. Comments and questions from the audience included:
>
> - Will basin stakeholders' concerns related to the City of Hays change applications be formally heard?

[109] *See* K.S.A. 77-620(a).

[110] Supplemental Brief, p. 3, ¶ 12(c) citing R. 306.

[111] R. 669-670.

- Will the City of Hays be allowed to take more water of the area than the safe yield?
- The irrigation of alfalfa was not sustainable long-term and therefore that high level of water use should not be a basis for determining how much water can be converted from irrigation to municipal use.[112]

67. These concerns caused the Chief Engineer to take a "closer look at historical water use, water level changes, and aquifer characteristics in the area."[113]

68. The Chief Engineer also advised the Cities that he wanted to discuss opportunities for public input, stating:

> As noted above, basin stakeholders would like an opportunity to have their concerns heard prior to a decision. Our regulations allow for a pre- or post-decision hearing before the chief engineer if requested by the applicant, and for the non-applicant, anyone who believes they are aggrieved by the chief engineer's decision can request a review by the Secretary of Agriculture. *See* K.A.R. 5-14-3. We would like to discuss the City's views on requesting a pre- or post-decision hearing on the change applications.[114]

69. The Chief Engineer copied Richard Wenstrom with Water PACK on

[112] R. 669-670.

[113] R. 669-670.

[114] R. 669-670.

an April 6, 2016[115] letter summarizing a March 24, 2016 meeting between DWR and the Cities discussing the Change Applications.[116]

> At the meeting, the City expressed ***its desire and commitment to keeping the process towards completing the Project as transparent as possible***. We discussed the options for public involvement including informational meetings and formal hearings. For the City, Mr. Traster said that, at this time, the City does not intend to request a pre-decision hearing, but it reserves the right to make such a request.
>
> The City did say, however, that if the chief engineer wishes to hold a pre-decision meeting or hearing of his own volition, the City would not object and would participate in such proceeding.[117]

70. Water PACK retained Dr. Andrew Keller of Keller-Bliesner Engineering, LLC, Logan, Utah, to review the quantity of water to be converted from irrigation to municipal use.[118]

71. Dr. Keller prepared a report dated November 24, 2016, entitled *R9 Ranch Consumptive Use Analysis*.[119]

72. More than 1.5 years later, Dr. Keller referred to his Report in a

[115] R. 665-668.

[116] R. 665-668.

[117] R. 665-668 at 668 (emphasis added).

[118] R. 959.

[119] R. 959-992. Unmarked "corrections" were made on November 12, 2017.

narrated PowerPoint presentation[120] during the June 21, 2018, Public Meeting held in Greensburg, Kansas.

73. Dr. Keller's *R9 Ranch Consumptive Use Analysis* Report was first provided to the Chief Engineer and the Cities on Thursday, July 5, 2018, over 19 months after it was prepared.[121]

74. Neither Water PACK nor any of its members sought to intervene in the Change Application proceeding, participate in the development of the DRAFT Master Order, or provide relevant information while the Master Order was being drafted.

The Chief Engineer gave careful consideration to Water PACK's evidence and comments on the May 4, 2018 DRAFT Master Order.

75. Attached as Exhibit 9 is a comparison of the May 4, 2018 DRAFT Master Order provided to the GMD and the Public[122] and the FINAL Master Order signed by the Chief Engineer on March 27, 2019.[123]

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[120] R. 880-902 transcribed at 861-878

[121] Ex. 8, July 5, 2018, email from David Barfield to Toby Dougherty, Brian Meier, and David Traster forwarding a July 5, 2018, email from Kent & Suzanne Moore to David Barfield and the attached *R9 Ranch Consumptive Use Analysis* report dated November 24, 2016 and corrected on November 12, 2017 prepared by Dr. Andrew Keller for Water PACK.

[122] R. 396-483

[123] R. 58-133

76. The attached comparison shows that the Chief Engineer carefully reviewed the public comments and, as a result, made numerous additional findings in the final Master Order before it was signed and served. For example:

a. The Chief Engineer stated that in addition to the June 21, 2018 public meeting to explain the issues and to receive comments from the public, he provided an extended public comment period, accepting comments through September 2018.[124]

b. The Chief Engineer carefully considered Dr. Keller's PowerPoint[125] and transcript[126] presented at the June 21, 2018 public meeting and his November 24, 2016 Consumptive Use Report[127] discussed extensively in the Master Order, ¶¶ 76-91.[128]

c. In addition, GMD5 retained Balleau Groundwater, Inc. ("BGW") as a consultant to review the BMcD Model Report, and the Chief

[124] R. 68, ¶ 59.

[125] R. 880-902.

[126] R. 862-879.

[127] R. 959-992.

[128] R. 68-69, ¶ 61; R. 72-74, ¶¶ 79-84; R. 83, ¶ 135; R. 83-84, ¶ 140; and R. 85 ¶ 145 – R. 89, ¶158.

Engineer carefully considered BGW's comments,[129] including a PowerPoint titled, *Technical Assessment of City of Hays Water Transfer/R9 Ranch Development Scenarios and Commentary on WaterPACK Analysis*;[130] "in-line" comments in response to Dr. Keller;[131] and the 2010 report titled *Hydrologic Model of Big Bend Groundwater Management District No. 5*.[132]

d. After his review, the Chief Engineer added the following finding:

> The Chief Engineer finds that the requested changes in points of diversion are reasonable, will not impair existing rights, and relate to the same local source of supply as that to which the R9 Water Rights relate. *See* K.S.A. 82a-708b(a).[133]

e. The Chief Engineer edited or added ¶¶ 59-69; ¶¶ 78-88; ¶¶127-170, ¶¶ 217-219 to the Master Order as a result of concerns expressed by Water PACK, the GMD, and others.[134]

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[129] R. 68, ¶ 60; R. 73, ¶ 82; R. 77, ¶¶ 99-101; R. 79, ¶¶ 106-111; and R. 85 ¶ 145 – R. 89, ¶158.

[130] R. 704-736.

[131] R. 737-744.

[132] R. 3231-3443.

[133] R. 99, ¶ 212.

[134] *See* the referenced paragraphs in Ex. 9, the comparison.

77. On March 27, 2019,[135] the Chief Engineer signed the Master Order and it was served on March 28, 2019.[136]

Argument and Authorities

I. Water PACK failed to comply with the Court's Order to explain how each deposition and deposition topic relates to Water PACK's assertion that the Chief Engineer failed to follow a prescribed procedure or engaged in an unlawful procedure.

At the October 17, 2019, hearing on the Motion for Discovery, the Court ordered Water PACK to file a supplemental brief identifying the individuals Water PACK wants to depose, the topic of each proposed deposition, and an explanation of how each deposition and deposition topic relates to Water PACK's assertion that the Chief Engineer failed to follow a prescribed procedure or engaged in an unlawful procedure.

On November 7, 2019, the parties submitted a proposed order journalizing the results of the October 17, 2019, hearing on Water PACK's Motion for Discovery. The parities could not reach agreement on some of the terms of the proposed order. However, the Order submitted to the Court included the following:

[135] R. 109.

[136] R. 110.

The Parties have conferred and agree that the following provisions accurately reflect the Court's Orders or the Parties' agreement:

Water PACK's Motion was briefed by the Parties. After hearing the arguments and statements of counsel, the Court orders as follows:

1. Water PACK shall supplement its Motion no later than November 8, 2019. The supplement must:
   a. identify the specific persons Water PACK wishes to depose;
   b. include a ***complete and detailed statement*** of the subject matter or matters of each proposed deposition;
   c. include a ***detailed statement*** explaining how the information sought from each deponent relates to Plaintiff's K.S.A. 77-621(c)(5) allegation that the Chief Engineer engaged in an unlawful procedure or failed to follow a prescribed procedure.[137]

Water PACK's brief fails to comply with the Court's Order and the agreed terms of the proposed Order. The Supplemental Brief does not explain, in detail or otherwise, how each proposed deposition relates to alleged defects in procedure. Instead, Water PACK continues to target substantive matters such as impairment of water rights,[138] use of and reliance on water modeling,[139] and the

[137] Emphasis in subparagraphs b. and c. added.

[138] Supplemental Brief, p. 13, ¶ 1.a; p. 14, ¶ 1.a; p. 15, ¶ 1.a.

[139] Supplemental Brief, p. 13, ¶ 1.b; p. 14, ¶ 2.b; ¶ 1.b; ¶ 2.a; p. 15, ¶ 1.c; ¶ 2.a.

Chief Engineer's decisions and conclusions with which Water PACK is unhappy.[140]

For example, Paragraph 2.a. on page 13 of Water PACK's brief is titled "Unlawful Procedures or Decision-Making Processes," but that section deals only with substantive issues behind thinly veiled procedural jargon. The first discovery topic under that paragraph states that Water PACK seeks discovery relating to approval of the change applications "in violation of K.S.A. 77-621(c)(5) and the No Injury Regulation." That is just another way of saying that Water PACK dislikes the Chief Engineer's conclusion that approval of the Change Applications will not impair nearby water rights—a substantive matter. None of the other paragraphs fare better.

II. The Court lacks subject matter jurisdiction over the Plaintiff's K.S.A. 77-621(b)(5) claim, which must be dismissed, rendering the present Motion for Discovery moot.

The Plaintiff's claim for relief asks the Court to hold that the "Chief Engineer engaged in an unlawful procedure or failed to follow prescribed procedure."[141] The Petition does not identify the "prescribed procedure" that the

[140] Supplemental Brief, p. 13, ¶ 1.c-1.d; p. 14, ¶ 2.c-2f; ¶ 1.c; p. 15, ¶ 2.b-2.c; ¶ 1.b; ¶ 1.b; ¶ 2.b-2.c.

[141] Petition, Claim for Relief, ¶ c.

Chief Engineer "failed to follow." And as discussed below, subsequent briefing has not solved this fundamental problem; a fatal defect in Water PACK's attempt to obtain judicial review.

This failure is jurisdictional, and Water PACK has been afforded ample opportunity to cure the defective Petition. The K.S.A. 77-621(c)(5) claim must be dismissed.

The KJRA pleading requirements are set out in K.S.A. 77-614. Among other things, a Petition must set forth "facts to demonstrate that the petitioner is entitled to obtain judicial review"[142] as well as the "petitioner's reasons for believing that relief should be granted."[143]

Subsection (c) was added in 2009.[144] It provides plaintiffs with an opportunity to cure a defective pleading stating that failure to include some of the information listed in subsection (b) does not deprive the court of jurisdiction because leave to amend to provide the "omitted information ***required by subsection (b)*** shall be freely given ***when justice so requires***."[145]

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[142] K.S.A. 77-614(b)(5).

[143] K.S.A. 77-614(b)(6).

[144] L. 2009, Ch. 109, § 26.

[145] K.S.A. 77-614(c) (emphasis added).

The 2009 amendments did not lessen the ultimate burden because "omitted information" is still "required."

In *Bruch v. Kansas Dep't of Revenue*,[146] the Court held that a petition for judicial review is jurisdictional and failure to comply with K.S.A. 77–614(b) pleading requirements precludes the right of appeal[147] because the strict compliance standard informs the court and the agency of the positions raised.[148]

In *Kingsley v. Kansas Dep't of Revenue*,[149] the Court reviewed, clarified, and reaffirmed its holding in *Bruch* that KJRA Petitions "must *strictly comply* with the pleading requirements of K.S.A. 77–614(b)."[150]

The *Kingsley* Court noted that *Bruch* appeared to consolidate the pleading requirements in K.S.A. 77–614(b)(5), requiring that a KJRA Petition allege facts to demonstrate that the petitioner is entitled to obtain judicial review, and K.S.A.

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[146] 282 Kan. 764, 777, 148 P.3d 538, 547 (2006), disapproved on other grounds by *Sloop v. Kansas Dep't of Revenue*, 296 Kan. 13, 290 P.3d 555 (2012).

[147] 282 Kan. 764, syl. ¶ 2.

[148] 282 Kan. 764, syl. ¶ 4.

[149] 288 Kan. 390, 403, 204 P.3d 562, 572 (2009)

[150] 288 Kan. at 397; 404 (emphasis in original) ("failure to strictly comply with the pleading requirements of K.S.A. 77–614(b)(5) divests the district court . . . of subject matter jurisdiction."); and 406.

77–614(b)(6) requiring that a KJRA petition set out the reasons to believe that relief should be granted.[151]

The Court held that they are two distinct pleading requirements.[152] First, to pass muster under K.S.A. 77–614(b)(5), a Petition must allege facts that show that the Plaintiff is entitled to judicial review. Second, the Petition must give specific reasons that the plaintiff is entitled to the relief so the court and the agency have notice of the issues to be addressed.

In *Bruch*, the Court held that the plaintiff failed to strictly comply with K.S.A. 77–614(b)(5) and (6) by failing to specify the issues for which he sought judicial review.[153]

In *Kingsley*, the Court reached the opposite conclusion because the Petition in that case included the reasons for relief, giving the court and the agency notice of the issues to be addressed.[154]

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[151] 288 Kan. at 399-401.

[152] 288 Kan. at 401.

[153] 282 Kan. 764, syl. ¶ 5.

[154] 288 Kan. 391, syl. ¶ 8.

The Court reaffirmed *Bruch* and *Kingsley* in *Swank v. Kansas Dep't of Revenue*,[155] stating,

> Our conclusion that the district court had subject matter jurisdiction in this case also is consistent with the fair notice purpose of the strict compliance pleading requirement discussed in *Bruch* and *Kingsley* . . . . The record before us demonstrates adequate notice to and comprehension of the nature of Swank's claims on the part of the agency and the district court judge.[156]

In *Via Christi Hospital v. Kan-Pak, LLC*,[157] decided on November 1, 2019, the Court cited *Kingsley* and *Bruch*, stating that a "petition for judicial review of an agency action is jurisdictional[,] . . . the failure to comply with the pleading requirements set forth in K.S.A. 77-614(b) precludes a litigant's statutorily granted right of appeal. Moreover, the compliance with these pleading requirements must be 'strict' before a court may exercise jurisdiction over the petition."[158]

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[155] 294 Kan. 871, 877–78, 281 P.3d 135, 140 (2012)

[156] 294 Kan. at 878. *See also Jahnke v. Blue Cross & Blue Shield of Kansas, Inc*., 51 Kan. App. 2d 678, 687, 353 P.3d 455, 462 (2015) ("Strict compliance with the pleading requirements of K.S.A. 77–614(b) is necessary before a court may exercise subject matter jurisdiction over a petition for judicial review.")

[157] No. 116,692, 2019 WL 5656148, at *4 (Kan. Nov. 1, 2019)

[158] No. 116,692, 2019 WL 5656148, at *4 (Kan. Nov. 1, 2019) internal quotes and citations omitted.

The Petition asks the Court to set the Master Order aside asserting that the Chief Engineer engaged in an unlawful procedure or failed to follow prescribed procedure. The petition does identify the procedures alleged to have been violated leaving the Court and the Parties guessing about the reasons Water PACK seeks relief.

As shown below, Water PACK has not been able to identify an "unlawful procedure" or a "prescribed procedure" that the Chief Engineer failed to follow. Thus, Water PACK's Motion for Discovery must not only be denied, the K.S.A. 77-621(c)(5) claim must be dismissed altogether.

III. Courts presume that agency action is valid when the agency possesses discretion; judicial review is limited to the Agency Record; and courts are not permitted to reweigh the evidence or engage in de novo review.

It appears that Water PACK, after electing not to intervene in the administrative proceeding below, seeks to reopen the Agency Record to gather evidence with which to attack the Master Order. The burden to prove that the Master Order is invalid is on Water PACK,[159] and Water PACK must first overcome the presumption of validity of agency action by establishing one of the factors in 77-621(c) as well as the harmless error rule. The burden is heavy

[159] K.S.A. 77-621(a)(c).

because the Court reviews the evidence in light of the Agency Record as a whole but "shall not reweigh the evidence or engage in de novo review."

In *Sierra Club v. Mosier*,[160] citing *Pork Motel, Corp. v. Kansas Dept. of Health & Environment*,[161] the Court said: "where an agency possesses discretion, a court must presume the validity of the agency action and cannot substitute its judgment for that of the administrative agency."[162]

IV. The KJRA does not impose procedural duties of any significance on state agencies.

The crux of Water PACK's argument seems to be its assertion that the KJRA imposes procedural requirements on the Chief Engineer's consideration of change applications filed pursuant to K.S.A. 82a-708b(a).[163]

It does not.

Instead, the KJRA confers "procedural rights" on state agencies and imposes "procedural duties" on those who seek to challenge agency actions.

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[160] 305 Kan. 1090, 1113, 391 P.3d 667, 684–85 (2017).

[161] 234 Kan. 374, 382, 673 P.2d 1126 (1983).

[162] *See also*, *Stueckemann v. City of Basehor*, 301 Kan. 718, 750, 348 P.3d 526, 546 (2015) citing *Denning v. Johnson County Sheriff's Civil Service Bd.*, 299 Kan. 1070, 1076, 329 P.3d 440 (2014), *Reiter v. City of Beloit*, 263 Kan. 74, 86, 947 P.2d 425 (1997), and *Combined Investment Co. v. Board of Butler County Comm'rs*, 227 Kan. 17, 28, 605 P.2d 533 (1980).

[163] Supplemental Brief, p. 5. ("the unlawful procedures . . . arise under the KJRA and the statutes applicable to the Master Order.")

After setting out preliminary matters,[164] the KJRA states that it is the exclusive means of judicial review of agency action.[165] Thus, the KJRA creates a "procedural right" that limits judicial involvement in state agencies' affairs.

The KJRA grants "procedural rights" to agencies by imposing numerous "procedural duties" on others. It limits challenges to agency action because it:

- limits access to judicial review by imposing procedural barriers;[166]
- limits the scope of interlocutory review;[167]
- imposes standing requirements;[168]
- imposes exhaustion requirements;[169]
- imposes stringent time limits on seeking judicial review;[170]
- imposes strict pleading requirements;[171]
- imposes service of process and notice requirements;[172]
- limits the court's ability to stay agency orders;[173]

[164] K.S.A. 77-601 - 77-605.

[165] K.S.A. 77-606.

[166] K.S.A. 77-607.

[167] K.S.A. 77-608.

[168] K.S.A. 77-611.

[169] K.S.A. 77-612.

[170] K.S.A. 77-613.

[171] K.S.A. 77-614. *See* Section I. above.

[172] K.S.A. 77-615.

[173] K.S.A. 77-616.

- limits consideration of issues to those raised before an agency;[174]
- limits judicial review to the agency record; and[175]
- limits the consideration of new evidence.[176]

The flip side of each of the "procedural duties" imposed on Petitioners is a "procedural right" bestowed on state agencies.

The very first KJRA "procedural duty" imposed on state agencies is to provide the court with the agency record.[177]

Water PACK asserts that the KJRA scope-of-review provisions impose "procedural duties" on state agencies.[178] Not so. The scope-of-review section:

- gives state agencies a "procedural right" to a presumption that agency action was valid;
- imposes a "procedural duty" on Petitioners to prove that agency action was invalid;[179]
- gives agencies the "procedural right" to have their decisions reviewed based on the standards in place when the action was taken;[180] and
- places a "procedural duty" on the court to make separate and distinct rulings on each material issue.[181]

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[174] K.S.A. 77-617.

[175] K.S.A. 77-618.

[176] K.S.A. 77-619.

[177] K.S.A. 77-620.

[178] K.S.A. 77-621.

[179] K.S.A. 77-621(a)(1).

[180] K.S.A. 77-621(a)(2).

[181] K.S.A. 77-601(b).

Subsection (c) does not place any burdens on state agencies because subsection (a)(1) places the burden on the Petitioner to:

- prove that the agency action was unconstitutional, either facially or as applied;
- prove that the statute or agency regulation is unconstitutional, either facially or as applied;
- prove that the agency lacked jurisdiction;
- prove that the agency failed to decide an issue;
- prove that the issue the agency failed to decide required resolution;
- prove that the agency erroneously interpreted the law;
- prove that the agency erroneously applied the law;
- prove that the agency engaged in an unlawful procedure;
- prove that the agency failed to follow a prescribed procedure;
- prove that the agency was improperly constituted;
- prove that the person taking the agency action was subject to disqualification;
- prove that the agency action was not supported by substantial evidence;
- prove that the agency action was unreasonable;
- prove that the agency action was arbitrary; and/or
- prove that the agency action was capricious.[182]

Finally, in subsection (d), the Petitioner gets a "procedural right."[183] Courts are allowed to consider evidence in the agency record that detracts from the

[182] K.S.A. 77-601(c)(1)-(8).

[183] K.S.A. 77-621(d).

validity of the agency action.[184] But agencies get a competing "procedural right" because courts cannot reweigh the evidence or engage in de novo review.[185]

Even when the Petitioner clears all of the procedural hurdles, the agency gets the "procedural right" to be wrong as long as it was "harmless."[186]

WaterPACK makes no effort to explain any harm it or anyone else would suffer, likely because approval of the Cities' water transfer will ultimately *improve* the water conditions on the ground compared to historical and current irrigation practices in the area—including practices by Water PACK's own members.

V. There is no legal or logical support for Water PACK's argument that the Chief Engineer failed to engage in rulemaking.

Water PACK argues that the Chief Engineer's failure to engage in rulemaking to authorize contingent approval of change applications is a procedural defect.[187]

The argument ignores the "rulemaking" that not only permits inclusion of a contingency in the Master Order, it ***requires*** contingencies. K.A.R. 5-50-

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[184] K.S.A. 77-601(d).

[185] K.S.A. 77-601(d).

[186] K.S.A. 77-601(e).

[187] Supplemental Brief, pp. 6 and 11.

2(x)(2)(A)-(C) and K.A.R. 5-50-7(b)(1)-(3) require water transfer applicants to identify the source of the water to be transferred and to demonstrate that the water can be beneficially used at the proposed destination. Having these documents in hand assures the hearing panel that there is water to transfer.

As discussed in the Statement of Facts,[188] K.A.R. 5-50-2(x)(2)(A)-(C) and K.A.R. 5-50-7(b)(1)-(3) were adopted in 1996. The regulations require, in two places, that transfer applicants obtain "contingently approved" applications for new permits or change applications. Thus, even assuming that the Chief Engineer does not have the authority *in other cases* to include contingencies in new permits or in approval of change applications, K.A.R. 5-50-2(x) and K.A.R. 5-50-7 satisfy Water PACK's rulemaking concerns because these Change Applications are contingent on approval of a water transfer.[189]

Water PACK's thumbs-up-thumbs-down approach[190] would, in essence, require applicants to risk the entire value of their water rights if the transfer was not approved or was stymied by any number of other unforeseen problems.[191]

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[188] Statement of Facts, ¶ 26 and footnote.

[189] Supplemental Brief, pp. 6 and 11.

[190] Supplemental Brief, p. 11.

[191] *See* Statement of Facts, ¶¶ 26-28.

Moreover, Water PACK cites no authority that requires the Chief Engineer to adopt rules that list all of the various kinds of terms, conditions, and limitations that can be included in an order approving a change application.[192] Nor does Water PACK make a persuasive argument for such a requirement. Instead, Water PACK makes the naked assertion that "failure to engage in a rulemaking" is a "procedural defect."[193]

Since there is no requirement to adopt a regulation permitting inclusion of a contingency in the Master Order, the "procedural defect" cannot be a failure to follow a "prescribed procedure."[194] And, since there was no legal requirement to violate, it cannot be an "unlawful procedure."[195] Water PACK's argument should be rejected.

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[192] On p. 6, footnote 3, Water PACK cites *Clawson v. Kan. Dep't of Ag.*, 49 Kan. App. 2d 789, 315 P.3d 896 (2013) stating that authority claimed by an agency must be conferred by statute either expressly or by clear implication. DWR has express authority to adopt regulations and has done so. K.S.A. 82a-706a and 82a-1506. *Clawson* does not suggest that the Chief Engineer must adopt regulations authorizing particular kinds of terms or conditions in administrative orders.

[193] Supplemental Brief, p. 6.

[194] K.S.A. 77-621(c)(5).

[195] *Id*.

VI. The KWAA gives the Chief Engineer authority to include terms, conditions, and limitations in Orders approving a change application.

As Water PACK points out,[196] K.S.A. 82a-708b(a) permitted the Cities to apply for approval to change the place of use, the point of diversion, or the use made of the water.[197] To obtain approval, the Cities had to demonstrate to the Chief Engineer that their proposed changes are reasonable and will not impair existing rights.[198]

Approval of the Cities' Change Applications was not a "thumbs up or thumbs down" decision.[199] The statute directs the Chief Engineer to "approve or reject" the Cities' Change Applications "in accordance with the provisions and procedures prescribed for processing original applications for permission to appropriate water."[200]

Though we cannot know for sure (because Water PACK does not say), Water PACK appears to rely on K.S.A. 82a-708b for its thumbs-up-thumbs-down

[196] Supplemental Brief, p. 6.

[197] K.S.A. 82a-708b(a) and (a)(1).

[198] K.S.A. 82a-708b(a)(2).

[199] R. 5 and Supplemental Brief, p. 11.

[200] K.S.A. 82a-708b(a).

argument.[201] Water PACK ignores the fact that the statute incorporates the Chief Engineer's authority from K.S.A. 82a-712 to approve new permits, and hence change applications, to include "terms, conditions, and limitations as he or she shall deem necessary for the protection of the public interest."[202]

Under a plain reading of the statute, the Chief Engineer has broad, but not unlimited, authority to approve, reject, or condition approval of a change application. This includes the power to impose terms, conditions, and limitations that are in the public interest. Including contingencies in the WTA regulations demonstrates that they are, or at least can be in the public interest.[203]

VII. When the Chief Engineer signed and served the Master Order it became a KAPA "initial order" which specifically permits administrative orders that are contingent on future events.

The Chief Engineer's consideration of the Cities' Change Applications was not subject to the Kansas Administrative Procedure Act[204] ("KAPA") because

[201] Water PACK cites K.S.A. 82a-708b and all 15 sections of DWR's change application regulations; all of the other 73 sections of the KWAA; and all 9 sections of the WTA, R. 5 and Supplemental Brief, p. 11., but fails to provide the Court or the Parties with specific citations within these 93 separate provisions.

[202] K.S.A. 82a-712

[203] K.A.R. 5-5—2(x) and 5-50-7.

[204] K.S.A. 77-501, *et seq.*

KAPA "applies ***only to the extent*** that other statutes expressly provide that the provisions of this act govern proceedings under those statutes."[205] The KWAA does not make proceedings under K.S.A. 82a-708b subject to KAPA.

However, any person aggrieved by the Chief Engineer's approval of a K.S.A. 82a-708b(a) change application may petition for review under K.S.A. 82a-1901[206] which states that review is to be "in accordance with" KAPA.[207]

Thus, KAPA did not apply to the administrative proceeding that began when the Cities filed their Change Applications. But KAPA kicked in the day the Chief Engineer signed and served the Master Order approving the Cities' Change Applications.

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[205] K.S.A. 77-503(a) (emphasis added).

[206] K.S.A. 82a-708b(a). *See also*, K.S.A. 82a-724. K.S.A. 82a-1901 was amended in 2017 but stated that the amendments do not affect administrative proceedings pending before the Chief Engineer on July 1, 2017. K.S.A. 2018 Supp. 82a-1901(e). This administrative proceeding began on June 26, 2015, when the Cities filed their Change Applications. Because it commenced before July 1, 2017, the pre-amendment version of K.S.A. 82a-1901 was applied.

In *Bd. of Cty. Commissioners of Sumner Cty. v. Bremby*, 286 Kan. 745, 753-757, 89 P.3d 494 (2008), the Court held that the term "proceeding," as it is used in the KJRA, is to be read broadly to refer to the process by which an agency carries out its statutory duties, including considering whether to grant or deny a permit application.

[207] K.S.A. 82a-1901(a).

The Secretary of Agriculture, not the Chief Engineer, is the KAPA "agency head."[208] Orders issued by the agency head are KAPA "final orders."[209] Everyone else issues KAPA "initial orders," which become final orders unless reviewed.[210]

KAPA specifically authorizes administrative orders that include an "effective date" after the date it becomes a "final order," i.e., orders that are contingent on future events.[211] That section states:

> (a) ***Unless a later date is stated in a final order*** or a stay is granted, a final order is effective upon service.
>
> (b) ***Unless a later date is stated in an initial order*** or a stay is granted, an initial order shall become effective and shall become the final order . . .

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[208] KAPA defines the "agency head" as an "individual . . . in whom the ultimate legal authority of the agency is vested by any provision of law." K.S.A. 82a-702(c).

The Secretary of Agriculture is the Kansas Department of Agriculture ("KDA") "agency head." K.S.A. 74-560(a). The Division of Water Resources ("DWR") is a division of and "within" the KDA. K.S.A. 74-506a. DWR is "under the control, administration and supervision of the secretary of agriculture." K.S.A. 75-506b. The Secretary of Agriculture employs the Chief Engineer, who is a "classified" employee under the Kansas Civil Service Act. K.S.A. 74-506d.

[209] K.S.A. 77-526(a).

[210] K.S.A. 77-526(b).

[211] K.S.A. 77-530.

Because the Master Order was a KAPA initial order when it was issued, the Chief Engineer was authorized to issue the Master Order and the Change Approvals with effective dates after they become final.

VIII. The federal exceptions do not apply to the KJRA.

Water PACK's brief has a long and seemingly irrelevant discussion[212] of the federal cases applying the unremarkable requirement established by the U.S. Supreme Court in *Citizens to Preserve Overton Park, Inc. v. Volpe*, [213] that federal judicial review of informal federal agency action must be "based on the full administrative record."[214]

While federal courts have created a number of exceptions to the rule that judicial review must be limited to the agency record, they are still exceptions. This is because *Asarco, Inc. v. U.S. Envtl. Prot. Agency*,[215] a case cited by Water PACK, warns that when "a reviewing court considers evidence that was not

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[212] Supplemental Brief, pp. 7-10.

[213] *Citizens to Pres. Overton Park, Inc. v. Volpe*, 401 U.S. 402, 419, 91 S. Ct. 814, 825, 28 L. Ed. 2d 136 (1971), abrogated by *Califano v. Sanders*, 430 U.S. 99, 97 S. Ct. 980, 51 L. Ed. 2d 192 (1977)

[214] Travis O. Brandon, *Reforming the Extra-Record Evidence Rule in Arbitrary and Capricious Review of* Informal Agency Actions, 21 LEWIS & CLARK L. REV. 981, 959 (2017).

[215] 616 F.2d 1153, 1160 (9th Cir. 1980).

before the agency, it inevitably leads the reviewing court to substitute its judgment for that of the agency."

Aram A. Gavoor & Steven A. Platt explain some of the reasons other litigants ask federal courts to order agencies to produce more documents:

- Adding non-record or unredacted materials gives Petitioners a second bite at the apple.
- Petitioners are in court because they lost and seek additional materials that they hope will benefit their cases, i.e., the proverbial "fishing expedition."
- Petitioners may hope to obtain "generally normative" materials that can be misconstrued as bad faith or improper behavior.
- Petitions may hope to obtain documents that are not relevant and therefore were not considered but that can be misconstrued as relevant to support allegations that the agency failed to consider an important issue.
- They may seek access to information that is not otherwise available as fodder for future lawsuits, or in this case future administrative proceedings like the water transfer.
- Petitioners may want to obtain de facto de novo review by conflating records issues and merits issues.[216]

Water PACK's brief lists 8 to 10, depending on how one reads them, inapplicable and irrelevant exceptions created by federal judges. However, the rule that judicial review must be confined to the Agency Record is still the rule in

[216] Aram A. Gavoor & Steven A. Platt, *Administrative Records and the Courts*, 67 U. Kan. L. Rev. 1, 63–64 (2018)

federal courts. It is certainly the rule under the KJRA.[217] Moreover, Water PACK does not argue that any of the exceptions are applicable here.

IX. The City of Hays is entitled to representation by counsel.

Water PACK appears to assert that the City of Hays is not permitted to be represented by counsel in the administrative proceeding that began with filing the Change Applications in 2015.[218]

Water PACK asserts that one of the "panoply of problems" is the preparation of a draft Initial Order by the City's lawyer and subsequent "collaborative drafting of the Master Order by the Cities and Agency in the absence of a regulation or statute permitting the same."[219]

Water PACK cites no authority for the proposition that a municipal corporation which, as an artificial entity, can only act through representatives, cannot be represented by counsel in an administrative proceeding.

While KAPA does not apply to administrative proceedings before the Chief Engineer, if it did, the City could be represented by counsel.[220] Moreover,

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[217] K.S.A. 77-621(d).

[218] *See* footnote 206.

[219] Supplemental Brief, p. 11-12 citing pp. 2-3, ¶¶ 5 and 12(d).

[220] K.S.A. 77-515(a) and (b).

because the City of Hays is a corporation, KAPA would allow the Agency to require participation by counsel.[221] And DWR regulations permit parties to be represented by counsel.[222]

In any event, the Chief Engineer did not object to participation by counsel in the negotiation of the Master Order. The detailed negotiation and drafting took many months and was not done in secret.[223] As discussed in Section XI., Water PACK could have intervened in the proceeding but declined to do so.

X. There is no evidence that the Chief Engineer predetermined the outcome of the public comment period.

Water PACK asserts that the Chief Engineer published "the ***draft*** Master Order"[224] and held a public meeting to receive comments on "the ***Draft*** Master Order"[225] when he had "predetermined" and "already determined" that the Draft Master Order conformed to all statutes and regulations and already decided all of the key issues.[226]

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[221] K.S.A. 77-515(c).

[222] K.A.R. 5-5-3a(e)(2); (i)(4); (j); (m)(6); (s)(2); and (t)(2).

[223] Statement of Facts, ¶¶ 29, 66-74, and 55.

[224] Supplemental Brief, p. 15, second bulleted paragraph citing p. 3, ¶ 10.

[225] Supplemental Brief, p. 15 fourth bulleted paragraph citing p. 2-3, ¶ 7.

[226] Supplemental Brief, p. 15 second and fourth bulleted paragraphs.

First, Water PACK's accusation that the Chief Engineer predetermined the outcome is based on a cynical and superficial reading of the Agency Record. It is based on three pages in the Agency Record that were part of a PowerPoint presentation by the Chief Engineer stating that the *Draft* Master Order conformed with statutes and regulations and a timeline indicating when the Chief Engineer anticipated the *Draft* Master Order would be contingently approved.[227] These are the only two "key" issues that Water PACK can point to when accusing the Chief Engineer of improperly "predetermining" the outcome. Water PACK clearly does not like the water transfer, but provides no evidence to support the assertion that the Chief Engineer did not fairly weigh the evidence before making his conclusions. In fact, it is telling that Water PACK makes this bare assertion without explanation—in particular in light of the presumption of validity discussed above. Moreover, the Master Order is an 80-page, single-spaced document (exclusive of an additional 167 pages of exhibits) that exhaustively addresses the Change Applications and the Cities' proposed Water Transfer from every angle. The attached comparison demonstrates that the Chief

[227] Supplemental Brief, p. 2, ¶ 7 and p. 12.

Engineer gave careful consideration to Water PACK's issues and concerns before issuing the Master Order.

Second, Water PACK's assertion falls by its own weight. The allegation itself states that the May 4, 2018 document was "the ***Draft*** Master Order."[228] The header on every page of the document included the following text: "*DRAFT PROPOSED MASTER ORDER DATED 5-4-18; FOR DISCUSSION ONLY*."[229]

As discussed in the Statement of Facts,[230] the Chief Engineer's May 4, 2018 letter makes it clear that the document was a "draft" that he characterized as "***potential workable documents*** acceptable to the Chief Engineer and the Cities . . . Nevertheless, these are only draft proposed documents and ***I have made no official decision about any of the issues***."[231] Just because Water PACK does not agree with the Chief Engineer's ultimate decision, does not mean it was in error.

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[228] Supplemental Brief, p. 15.

[229] R. 396-478

[230] Statement of Facts, ¶¶ 32, 38, and 75-77.

[231] R. 394 (emphasis added).

XI. The Burns and McDonnell computer Model is not a "standard, requirement or other policy of general application that has the force and effect of law . . . issued or adopted by a state agency to implement or interpret legislation."

Water PACK asserts that before the Chief Engineer could rely on the Burns and McDonnell ("BMcD") computer Model,[232] he was required to adopt it as a "rule and regulation"[233] as provided in the Kansas Rules and Regulations Filing Act.[234]

Water Pack admits that the proceeding is an "adjudication" arguing that the "use of the BMcD-modified Model in the ***adjudication*** amounted to the application of generally-applicable rules to a change order ***adjudication*** without undertaking a formal rulemaking permitting the same."[235]

The first section of the Kansas Rules and Regulations Filing Act disposes of this issue:

> An agency may bind parties, establish policies, and interpret statutes or regulations ***by order in an adjudication*** under the Kansas administrative procedure act ***or other procedures required by law***, except that such order shall not be used as precedent in any

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[232] R. 345-375. *See* Statement of Facts, ¶¶ 50-65.

[233] Supplemental Brief, p. 11.

[234] K.S.A. 77-415, *et seq.*

[235] Supplemental Brief, pp. 11-12 (emphasis added); see also, pp. 14-15, ¶ 2. a. at the top of p. 15; and p. 15 ¶ 2. a., near the bottom of the page.

subsequent adjudication against a person who was not a party to the original adjudication.[236]

The Act defines the terms "rule and regulation," "rule," and "regulation" to mean "a standard, requirement or other policy of ***general application*** that has the ***force and effect of law.***"[237] The Burns and McDonnell computer model is focused on the area on and around the R9 Ranch.[238] After calibration, Burns and McDonnell ran the model to show how the proposed changes to the R9 Water Rights would affect the aquifer in the short and long terms.

The Burns and McDonnell model does not have "***general application***" or the "***force and effect of law***." It's a computer simulation tailored to the R9 Ranch.

XII. Did Water PACK fail to exhaust its administrative remedies?

DWR regulations allow persons with property interests that could be adversely affected by the approval of a change application to request intervention in proceedings before the Chief Engineer.[239]

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[236] K.S.A. 77-415(b)(2)(A) (emphasis added). The statute goes on to list exceptions that are not applicable here.

[237] K.S.A. 77-415(c)(4) (emphasis added).

[238] R. 79, ¶ 108; R. 364.

[239] K.A.R. 5-14-3(g).

The Chief Engineer will consider holding a hearing requested by "a person who shows to the satisfaction of the chief engineer that approval of the application could cause impairment of senior water rights or permits."[240]

DWR regulations also state that "any person . . . who has a property interest that could be adversely affected . . . may request a review pursuant to K.S.A. 82a-1901, . . . without filing a request for a hearing before the chief engineer."[241]

While courts have a "duty to question jurisdiction" on their own initiative[242] and cannot always rely on the parties to point out jurisdictional problems,[243] the City advises the Court that there were administrative remedies available within the agency that Water PACK did not exhaust. The Cities take no position on this issue at this time but point it out for the Court's consideration and future briefing.

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[240] K.A.R. 5-3-4a.

[241] K.A.R. 5-14-3(c).

[242] *Pittsburg State Univ. v. Kansas Bd. of Regents*, 30 Kan. App. 2d 37, 44, 36 P.3d 853, 858 (2001) citing *State v. Snodgrass*, 267 Kan. 185, 196, 979 P.2d 664 (1999).

[243] *Via Christi Hospital v. Kan-Pak, LLC*, No. 116,692, 2019 WL 5656148, at *4 (Kan. Nov. 1, 2019).

Conclusion

Water PACK's Supplemental Brief does not comply with the Court's Order to explain, in detail, how the documents it seeks are related to alleged procedural deficiencies. Moreover, Water PACK has not, and cannot, identify any "prescribed procedure" that was not followed or any "unlawful procedure" engaged in. Because the Chief Engineer and the Cities, and presumably the Court, still have no idea what procedural problems Water PACK is complaining about, the Motion should be denied and Water PACK's K.S.A. 77-621(c)(5) claim should be dismissed with prejudice.

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CERTIFICATE OF SERVICE

I hereby certify that on the 6th day of December 2019, I presented the foregoing to the Clerk of the Court for filing and uploading to the Kansas Courts e-Filing system that will send notice of electronic filing to the following:

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THE HAYS DAILY NEWS
VOICE OF THE HIGH PLAINS

Frustrated city officials to pressure state on R9 water delay

By Margaret Allen / mallen@dailynews.net

Posted Feb 15, 2019 at 12:01 AM

Hays City Commissioners said Thursday night they will pressure the state to get moving on Hays' four-year effort to develop a long-term water supply.

The state has dragged its feet on Hays' request to pipe water from the city-owned R9 ranch in Edwards County, say the city's commissioners.

"I thought we would now be looking at our engineering and going to final engineering," said Mayor Henry Schwaller IV on Thursday evening after the commission's regular meeting at City Hall.

Hays and the city of Russell began in June 2015 to try and win state approval to pipe water from the R9 ranch, which Hays purchased in 1994 for its water rights.

"It's been four years, and our communities and the region need the R9 ranch to remain economically viable," Schwaller said.

The application should have taken 18 months, he said.

Despite a good working relationship with the Kansas Department of Water Resources, Schwaller said city officials have gotten no answers for the endless delay.

"We're ready for them to finish it up, and they just can't put that pen to paper on that Master Order," Schwaller said. "We have preliminary engineering. Now, putting together something then that we can bid, that will be a massive project."

EXHIBIT
1

The city's application seeks to use the water for municipal purposes instead of its current use for crop irrigation. Most recently, the application went for public hearing in June 2018.

Hays and Russell are the first to apply under the state's Water Transfer Act, which regulates the taking of water from one basin to another.

A series of statutes, the act kicks in when a transfer involves more than 2,000-acre feet over more than 35 miles. The Hays-Russell application covers 4,800-acre feet of water over 67 miles.

Schwaller's comments came at the end of Thursday night's meeting. Commissioner James Meier said he agreed 100 percent with Schwaller.

"It's my personal opinion that we have been treated quite differently from anybody else who would have filed the change order application," Meier said. "It's beyond time for the state to step up to the plate, cross the T's, dot the I's, and finish this."

He said it's time to look elsewhere for a resolution.

"We'll be making phone calls to the Governor's Office, the Agricultural Secretary and our state Representatives and state Senators," Meier said.

City Commissioner Ron Mellick also agreed the commission must apply pressure.

"It's very frustrating, the fact that we're getting promises that aren't met," Mellick said. "If we didn't have those promises we wouldn't be nearly as frustrated as what we are. As a commission we're going to start pushing a little harder, so if something comes about that we're not playing nice, well it's not about playing nice, it's making elected officials do what they're supposed to do, and appointed officials."

As a commissioner for two years now, Commissioner Sandy Jacobs said the water issue is a frustration.

"There's no reason for it to continue. We've done everything we're supposed to do," Jacobs said. "It's time we get it done."

It's time for a decision, said commissioner Shaun Musil.

"This is not only for Hays, but it's for our neighbors and western Kansas," Musil said. "We need for western Kansas to grow, and if we don't get this soon, it's going to hurt for a long time."

Hays plans to take less water than is available on the property, then monitor the usage very aggressively both annually and over 10 years.

Hays in August was led to believe that the final master order would be issued by the Division of Water Resources in two weeks, said Meier. But that two weeks has somehow stretched into six months, he said.

Once that order is issued, hearing officers will be appointed and certain officials are convened into a committee.

"Then we'd have a discussion about whether allowing that water to be transferred to Hays is more beneficial to the state than not transferring the water," Meier said.

The timeline changed about a month ago when the chief engineer for the Division of Water Resources wanted to insert a caveat in the change application that said in the future if there was ever any evidence that the quantity of water in the area was decreasing that that would cause an automatic evaluation of the amount of water Hays is allowed to pull out, Meier said.

"Keep in mind that under current law we should be allowed to pull out about 6,700 acre feet," he said. "In the past four years we've already gone through the process with DWR of reducing that from 6,700 acre feet to 4,800 acre feet, which is what we think is sustainable long term in the field. So for them to come back now and say we want this automatic reevaluation of how much you can pull out is kind of a last-minute play."

The city has supplied everything the state has asked for, and even gone above and beyond, Schwaller said.

"It's in our interest to bring the water to Hays and Russell, and possibly Ellis and Victoria and LaCrosse, as soon as possible," he said. "This will be the largest project in our city's history. We're very concerned by the delay in issuing that master order."

The Hays-Russell project, with an estimated $80 million cost, would give the city access to nearly 8,000-acre-feet of annual water rights.

Currently Hays and Russell use 3,000 acre feet drawn from groundwater wells drilled into the Smoky Hill River alluvium, the Big Creek alluvium and the Dakota formation.

"We're getting a little nervous," Schwaller said of the process. "We're not hearing what we need to hear, that is, what's going to happen next. We have no information, that's a bad sign."

THE HAYS DAILY NEWS
VOICE OF THE HIGH PLAINS

Hays pressures state to keep promise on R9 ranch water request

By Margaret Allen / mallen@dailynews.net
Posted Feb 19, 2019 at 2:18 PM

Hays is holding the state's feet to the fire on a promise to approve by March 1 the city's request to pipe water from Edwards County.

The state's Division of Water Resources agreed last Friday to deliver a needed Master Order after years of delay on the water project, said Hays Mayor Henry Schwaller IV, speaking at a news conference Tuesday morning at the Hays Welcome Center, 2700 Vine.

"We're looking forward to receiving the Master Order by next Friday (March 1)," Schwaller said. "And if not, we'll turn up the heat."

The city has worked 20 years on the project to pipe water from the 7,000-acre R9 ranch in Edwards County. Hays bought the ranch in 1994 as a future source of city water. Hays filed its application four years ago, working through the state's lengthy process.

"It's important to the counties of Russell, Rush and Ellis, that we have this water," Schwaller said. "We are a $2 billion economy and an important part of northwest Kansas. If we do not have this water we cannot continue to move forward, we've waited long enough and we're ready to move."

Hays officials last week said they're frustrated by the state's slow pace on the project. Because of that, Schwaller said, he and Hays City Manager Toby Dougherty and Russell City Manager Jon Quinday were in Topeka on Monday and met with Gov. Laura Kelly and Lt. Gov. Lynn Rogers, as well as Sen. Rick Billinger, R-Goodland, to talk about getting some action.

"Senator Billinger had great advice," Schwaller said. "He says if we don't have a Master Order by next Friday, he will personally go over and meet with the chief engineer of the Division of Water Resources. So let's give him the two

weeks and see if he sticks to his word."

Meanwhile, Hays City Commissioners also are reaching out to the division's chief engineer and to other elected officials, as well as deploying lobbyist Sean Miller to meet with the Secretary of Agriculture, who oversees the water division.

Without going into detail, Schwaller said the city will act If the state doesn't come through by March 1.

"There are other steps we can take, but they would be very harsh. We don't want to go down that path, I'm not even going to use the words, because If I say them, it will open a can of worms," he said. "There are other additional steps we can take and it will affect everyone in that basin."

Once a Master Order is released, Hays can start working through the state's required Water Transfer Act, which regulates the taking of water from one basin to another.

The city's application seeks to use the water for municipal purposes instead of its current use for crop irrigation. Hays and Russell are the first to ever apply under the Act.

A series of statutes, the act kicks in when a transfer involves more than 2,000-acre feet over more than 35 miles. The Hays-Russell application covers 4,800-acre feet of water over 67 miles.

Under current law, Hays could pump about 6,700 acre feet, but instead the city agreed to reduce that to 4,800 acre feet.

"We're taking a property that has nearly 8,000 acre feet of water," Schwaller said. "That's 8,000 football fields a foot deep, it's a lot of water, and we've said we'll take less than 4,800 acre feet."

The restriction is a rolling one over a 10-year period, so if Hays takes more in a year when there's drought then it would take less in other years.

Schwaller said Hays has studied the ranch and the water availability intensively with modeling, and looked at the entire life of the acquifer to make sure the project is done correctly. It won't give another inch, he said.

"We've already conceded everything we need to concede," he said. "Anything else is out of the question, because if we have to concede then all the other water holders in the area will have to concede as well, and that's not going to happen."

Preliminary engineering can proceed after the Master Order is issued. In developing the water, Hays plans to reconfigure the well field and reduce the number of wells. By not pumping its full water right allowed for irrigation, Schwaller said, Hays has already provided a benefit to neighboring farmers and ranchers.

While in Topeka Monday, the official trio also met with Brad Loveless, the new Secretary of Kansas Wildlife, Parks & Tourism, who was formerly with electric utility provider Westar Energy, and an avid hunter, outdoorsman and fisherman, Schwaller said. They told him the city has planted native grass at the 7,000-acre ranch and plans to turn it into a walk-in hunting area.

Under the Kansas Water Transfer Act, a three-person panel has an 18-month window in which to decide if the transfer is of more benefit than harm.

"We're going to demonstrate that certainly given the sustainable yield and given the sustainable use of that water in that region, and what we intend on doing here with that water, that the benefits actually do outweigh any costs," Schwaller said.

The Hays-Russell project, with an estimated $80 million cost, would give the city access to nearly 8,000-acre-feet of annual water rights.

Currently Hays and Russell use 3,000 acre feet drawn from groundwater wells drilled into the Smoky Hill River alluvium, the Big Creek alluvium and the Dakota formation.

THE HAYS DAILY NEWS
VOICE OF THE HIGH PLAINS

State to get a move on with R9 water project

By Margaret Allen / mallen@dailynews.net

Posted Feb 22, 2019 at 12:01 AM
Updated Feb 22, 2019 at 8:24 AM

After turning up the heat on the state of Kansas the past week, Hays Mayor Henry Schwaller IV said there's progress to report in the city's years-long effort to pipe water from Edwards County.

"The Chief Engineer has promised that he is going to get the Master Order off his desk by next Friday, and we are going to move forward," said Schwaller at the city's regular work session on Thursday evening.

"It will then go to review with internal counsel there at the Division of Water Resources, and be handed over to the city for its review," Schwaller said. "Thank you for your help everyone."

The Hays-Russell plan to develop a long-term water supply from the 7,000-acre city-owned R9 ranch in Edwards County has been four years winding through the state's lengthy application process. Schwaller has said the application should have taken 18 months.

Hays and the city of Russell began in June 2015 to try and win state approval to pipe water from the R9 ranch, which Hays purchased in 1994 for its water rights. The application seeks to use the water for municipal purposes instead of its current use for crop irrigation.

Hays and Russell are the first to apply under the state's Water Transfer Act, which regulates the taking of water from one basin to another.

A series of statutes, the act kicks in when a transfer involves more than 2,000-acre feet over more than 35 miles. The Hays-Russell application covers 4,800-acre feet of water over 67 miles.

Schwaller and Hays City Manager Toby Dougherty and Russell City Manager Jon Quinday were in Topeka on Monday and met with Gov. Laura Kelly and Lt. Gov. Lynn Rogers, as well as with Sen. Rick Billinger, R-Goodland. The idea was to ensure results on a promise by the state's chief engineer for the Division of Water Resources, who has said the Master Order would be ready March 1.

City Commissioner Shaun Musil on Thursday evening thanked Schwaller, and said he also tried to aid the effort.

"I just want to applaud you for calling attention to our water project last week," Musil said. "I reached out to Chief Engineer David Barfield. I personally felt it was a very good conversation, and I feel like he's definitely hearing us."

Musil and Schwaller thanked Barfield for taking phone calls from Hays officials, and both thanked City Commissioner James Meier for previously leading the charge on the project as mayor.

Entered in Transfer Record in my office
this 31 day of January
A.D. 1995
James Meadows
County Clerk
Deputy

STATE OF KANSAS, EDWARDS COUNTY } SS
This instrument was filed for Record on
the 31st day of January 1995
at 1025 o'clock A m and duly recorded
in Book 62 Page 218 Fees $ 14.00
Emily White
Register of Deeds

GENERAL WARRANTY DEED

STATE OF KANSAS)
) KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF EDWARDS)

THIS INDENTURE, by and between R-9 Ranch, a Kansas General Partnership, (First Party), and The City of Hays, Kansas, (Second Party).

WITNESSETH, That the said First Party, in consideration of the sum of Ten Dollars ($10.00) and other valuable consideration, the receipt of which is hereby acknowledged, does by these presents grant, bargain, sell, and convey unto Second Party, its successors and assigns, all the following described real estate, situated in the County of Edwards and State of Kansas, to-wit:

SURFACE RIGHTS ONLY IN AND TO:

PARCEL #1

Lots 5, 6 and 7, in Section 36, Township 25 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas, and lying east of the Arkansas River.

PARCEL #2

All of Section 15, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #3

The Northwest Quarter of Section 14, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #4

All of Section 11, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #5

Lots 4, 5, 6, and 7 and the Southeast Quarter of the Southwest Quarter and the Southeast Quarter of Section 10, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

EXHIBIT
2

PARCEL #6

Lots 7, 8, 9, and 10 and the East Half of the Southeast Quarter, and the Southwest Quarter of the Southeast Quarter of Section 2, EXCEPT 20 ACRES, more or less, in Section 2 described as follows:

Commencing at the Southeast corner of Section 2, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas; thence North 1,914.77 feet; thence West at right angles 2,539.63 feet; thence Northwesterly on an angle of 59 degrees 48'45" a distance of 63.6 feet for a place of beginning; thence in a Northeasterly direction at an angle of 65 degrees a distance of 2,314.63 feet; thence Westerly to the bank of the Arkansas River; thence Southwesterly along the bank of the Arkansas River to the place of beginning.

PARCEL #7

All of Section 1, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #8

All of Section 32, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #9

All of Section 31, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas; except a 40 acres tract de-described as:

> Southwest Quarter of the Southeast Quarter (SW/4 SE/4) of Section Thirty-one (31), Township Twenty-five (25), Range Nineteen (19), but including the water rights attendant to this particular tract. First Party further grants hereby to Second Party, during the term of the Lease Agreement dated September 17, 1994, between the Second Party and BET Farms a Partnership (Lessee), an option to request and accept from First Party a deed in fee simple to this 40 acre tract for no additional consideration. First Party also grants to Second Party a perpetual easement over, under and on said tract for the purpose of facilitating the use and transfer of water rights from said tract.

PARCEL #10

That part of the West Half of Section 30, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas, lying East of the Arkansas River.

PARCEL #11

All of Section 29, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #12

All of Section 5, Township 26 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #13

Lots 1 and 2 and the South half of the North Half and the Southwest Quarter of Section 4, Township 26 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas

PARCEL #14

The Southwest Quarter and the Southwest Quarter of the Southeast Quarter of Section 33, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

Together with any and all ditch and water rights, (certified or not), all remaining water rights to be certified, water priorities, bodies of water and ditch and water right easements and rights of way appertaining, belonging to and used upon or in connection with all the lands above described and upon each and every part thereof, including, but not by way of limitation, application numbers filed with the Kansas State Board of Agriculture, Division of Water Resources, as follows: Nos. 21,729, 21,730 21,731, 21,732, 21,733, 21,734, 21,841, 21,842, 22,325, 22,326, 22,327, 22,329, 22,330, 22,331, 22,332, 22,333, 22,334, 22,335, 22,338, 22,339, 22,340, 22,341, 22,342, 22,343, 22,345, 22,346, 27,760, 29,816, 30,083, 30,084, and 37,462, together with pumps, pipes and motors attached thereto; and together with all other wells, pumps, pipes, motors or irrigation equipment now placed on the above described property, excepting therefrom six new sprinklers currently being leased by Lessee, and except any additional sprinklers purchased or leased by First Party or Lessee during its lease of said property; and together with ten percent (10%) of all of First Party's mineral rights, which shall be non-participating as to delay rentals and bonuses, in and to the above-described real property. First Party hereby covenants and agrees that any future leases of the minerals executed by First Party, or its successors in title, will contain a provision that said mineral exploration will not interfere with Second Party's water production efforts on the demised property. First Party also grants hereby to Second Party a right of first refusal to purchase First Party's remaining mineral rights in and to the property.

TO HAVE AND TO HOLD THE SAME, Together with all and singular, the tenements, hereditaments and appurtenances hereunto belonging or in anywise appertaining forever.

And said Grantor for itself and for its successors and assigns, does hereby covenant, promise and agree to and with said Second Party, that at the delivery of these presents it is lawfully seized in its own right of an absolute and indefeasible estate of inheritance, in fee simple, of and in all and singular the above-granted and described premises, with the appurtenances; that the same are free, clear, discharged and unencumbered of and from all former and other grants, titles, charges, estates, judgments, taxes, assessments and encumbrances of what nature and kind whatsoever:

Except mineral reservations, royalties, easements, restrictions, covenants and right of ways as appear of record and the Lease Agreement dated September 17, 1994 between The City of Hays, Kansas and BET Farms, a partnership

and that Grantor will WARRANT AND FOREVER DEFEND the same unto said Second Party, its successors and assigns, against First Party, its successors and assigns, and all and every person or persons whomsoever lawfully claiming or to claim the same.

IN WITNESS WHEREOF, the said Grantor has executed this warranty deed on the dates set out opposite their signatures.

GRANTOR: R-9 RANCH, A Kansas General Partnership

By: Greg Ebert — Date: 1/30/95
Greg Ebert

By: Jerry Bryant — Date: 1-24-95
Jerry Bryant

By: Ralph Y. Ebert — Date: 1-24-95
Ralph Y. Ebert

By: Randell Taylor — Date: 1-24-95
Randell Taylor

By: Bradley Taylor — Date: 1-24-95
Bradley Taylor

Baucke Bros. By Gary Baucke — Date: 1-24-95

By: Baucke Bros By Larry Baucke — Date: 1-24-95
Baucke Bros. By - Larry Baucke

By: Ronald L. Blach — Date: 1-24-95
Ronald L. Blach

By: Darrel Adolf — Date: 1-24-95
Darrel Adolf

By: Rodney Liming — Date: 1-24-95
Rodney Liming

By: John D. Montgomery — Date: 1/24/95
John D. Montgomery

ACKNOWLEDGMENTS

STATE OF COLORADO)
) SS:
COUNTY OF YUMA)

BEFORE ME, the undersigned, a Notary Public, within and for said County and State, on this 24th day of January 1995, personally appeared Jerry Bryant, Ralph Y. Ebert, Randell Taylor, Bradley Taylor, Baucke Bros. By Larry Baucke, & Gary Baucke Partner, Ronald L. Blach, Darrel Adolf, Rodney Liming and John D. Montgomery, General Partners of R-9 Ranch, to me personally known to be the identical persons who executed the within and foregoing instrument and acknowledged to me that they executed the same as their free and voluntary act and deed for the use and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the day and year above written.

My commission expires:

7/20/97

Marlene Serl
Notary Public
Marlene Serl

ACKNOWLEDGMENT

STATE OF KANSAS)
) SS
COUNTY OF Ellis)

BEFORE ME, the undersigned, a Notary Public, within and for said County and State, on this 30th day of January, 1995, personally appeared Greg Ebert, General Partner of R-9 Ranch, to me personally known to be the identical person who executed the within and foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed for the use and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the day and year above written.

My commission expires:

SUSAN BILLINGER
State of Kansas
My Appt. Exp. Oct. 1, 1997

Susan Billinger
Notary Public
Susan Billinger

Entered in Transfer Record in my office
this 22 day of August
A.D. 1995
Pam Meadows
County Clerk

STATE OF KANSAS, EDWARDS COUNTY } SS
This Instrument was filed for Record on
the 28th day of August 1995
at 8:30 o'clock A m and duly recorded
in Book 62 Page 412 Fees $10.00
Emily White
Register of Deeds

CORPORATION WARRANTY DEED

STATE OF KANSAS)
) KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF ELLIS)

THIS INDENTURE, by and between The City of Hays, Kansas, a municipal corporation, (First Party), and The City of Russell, Kansas, a municipal corporation, (Second Party).

WITNESSETH, That the said First Party, in consideration of the sum of Ten Dollars ($10.00) and other valuable consideration, the receipt of which is hereby acknowledged, does by these presents grant, bargain, sell, and convey unto Second Party, its successors and assigns, all the following described real estate, situated in the County of Edwards and State of Kansas, to-wit:

AN UNDIVIDED EIGHTEEN PER CENT (18%) INTEREST IN AND TO THE SURFACE RIGHTS OF:

PARCEL #1

Lots 5, 6 and 7, in Section 36, Township 25 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas, and lying east of the Arkansas River.

PARCEL #2

All of Section 15, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #3

The Northwest Quarter of Section 14, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #4

All of Section 11, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #5

Lots 4, 5, 6, and 7 and the Southeast Quarter of the Southwest Quarter and the Southeast Quarter of Section 10, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #6

Lots 7, 8, 9, and 10 and the East Half of the Southeast Quarter, and the Southwest Quarter of the Southeast Quarter of Section 2, EXCEPT 20 ACRES, more or less, in Section 2 described as follows:

Commencing at the Southeast corner of Section 2, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas; thence North 1,914.77 feet; thence West at right angles 2,539.63 feet; thence Northwesterly on an angle of 59 degrees 48'45" a distance of 63.6 feet for a place of beginning; thence in a Northeasterly direction at an angle of 65 degrees a distance of 2,314.63 feet; thence Westerly to the bank of the Arkansas River; thence Southwesterly along the bank of the Arkansas River to the place of beginning.

EXHIBIT
3

PARCEL #7

All of Section 1, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #8

All of Section 32, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #9

All of Section 31, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas; except a 40 acres tract dedescribed as:

> Southwest Quarter of the Southeast Quarter (SW/4 SE/4) of Section Thirty-one (31), Township Twenty-five (25), Range Nineteen (19), but including the water rights attendant to this particular tract; and including also a perpetual easement over, under and on said tract for the purpose of facilitating the use and transfer of water rights from said tract.

PARCEL #10

That part of the West Half of Section 30, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas, lying East of the Arkansas River.

PARCEL #11

All of Section 29, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #12

All of Section 5, Township 26 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #13

Lots 1 and 2 and the South half of the North Half and the Southwest Quarter of Section 4, Township 26 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas

PARCEL #14

The Southwest Quarter and the Southwest Quarter of the Southeast Quarter of Section 33, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

Together with any and all ditch and water rights, (certified or not), all remaining water rights to be certified, water priorities, bodies of water and ditch and water right easements and rights of way appertaining, belonging to and used upon or in connection with all the lands above described and upon each and every part thereof, including, but not by way of limitation, application numbers filed with the Kansas State Board of Agriculture, Division of Water Resources, as follows: Nos. 21,729, 21,730 21,731, 21,732, 21,733, 21,734, 21,841, 21,842, 22,325, 22,326, 22,327, 22,329, 22,330, 22,331, 22,332, 22,333, 22,334, 22,335, 22,338, 22,339, 22,340, 22,341, 22,342, 22,343, 22,345, 22,346,

27,760, 29,816, 30,083, 30,084, and 37,462, together with pumps, pipes and motors attached thereto; and together with all other wells, pumps, pipes, motors or irrigation equipment now placed on the above described property, excepting therefrom six new sprinklers currently being leased by Lessee (BET Farms - see below), and except any additional sprinklers purchased or leased by Lessee during its lease of said property; and together with all of First Party's mineral rights, which shall be non-participating as to delay rentals and bonuses, in and to the above-described real property; and First Party's right of first refusal to purchase K-9 Ranch's, a Kansas General Partnership, remaining mineral rights in and to the property.

TO HAVE AND TO HOLD THE SAME, Together with all and singular, the tenements, hereditaments and appurtenances hereunto belonging or in anywise appertaining forever.

And said Grantor for itself and for its successors and assigns, does hereby covenant, promise and agree to and with said Second Party, that at the delivery of these presents it is lawfully seized in its own right of an absolute and indefeasible estate of inheritance, in fee simple, of and in all and singular the above-granted and described premises, with the appurtenances; that the same are free, clear, discharged and unencumbered of and from all former and other grants, titles, charges, estates, judgments, taxes, assessments and encumbrances of what nature and kind whatsoever:

Except mineral reservations, royalties, easements, restrictions, covenants and right of ways as appear of record and the terms and condition of that certain Lease Agreement dated September 17, 1994 between The City of Hays, Kansas and BET Farms, a partnership and that Grantor will WARRANT AND FOREVER DEFEND the same unto said Second Party, its successors and assigns, against First Party, its successors and assigns, and all and every person or persons whomsoever lawfully claiming or to claim the same.

IN WITNESS WHEREOF, the said Grantor has executed this warranty deed on the date set out.

GRANTOR:

City of Hays, Kansas a
Municipal Corporation

By: _____
Hannes Zacharias, City
Manager

STATE OF KANSAS)
) SS:
COUNTY OF ELLIS)

BEFORE ME, the undersigned, a Notary Public, within and for said County and State, on this 10th day of August, 1995, personally appeared Hannes Zacharias, City Manager of the City of Hays, Kansas, a municipal corporation, to me personally known to be the identical person who executed the within and foregoing instrument and acknowledged to me that they executed the same as their free and voluntary act and deed for the use and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the day and year above written.

JOHN T. BIRD
STATE NOTARY PUBLIC
Ellis County, Kansas
My Appointment Expires 2-12-98

My commission expires: _____

_____
Notary Public

(Notary:
John T. Bird)

quirements and criteria for the design of earth dams, as adopted November 1, 1983 by the Kansas state board of agriculture, division of water resources, is hereby adopted by reference and shall apply to dams constructed or modified in this state. (Authorized by K.S.A. 1982 Supp. 82a-303a; implementing K.S.A. 1982 Supp. 82a-302; effective May 1, 1984.)

Article 50.—WATER TRANSFERS

5-50-1. Definitions. As used in these rules and regulations, unless the context clearly requires otherwise: (a) Application means the document, made on the prescribed form furnished by the division, to request a permit to transfer water which is filed in the office of the chief engineer as provided in chapter 341, 1983 session laws of Kansas.

(b) Approval of application means issuance of a permit to transfer water from the point of diverson to a location outside a ten-mile radius from the point of diversion. (Authorized by K.S.A. 1983 Supp. 82a-1506; implementing K.S.A. 1983 Supp. 82a-1506; effective May 1, 1984.)

5-50-2. Requirements for application. Each application shall show: (a) The name and mailing address of the applicant;

(b) the quantity of water to be transferred and the maximum diversion rate;

(c) the point or points of diversion;

(d) the location of proposed usage;

(e) the proposed type of use of the water;

(f) any alternate source or sources of supply available to the applicant and to any other present or future users of the water proposed to be transferred;

(g) the proposed plan of design, construction and operation of any works or facilities used in conjunction with carrying the water from the point of diversion. The proposed plan of design shall be in sufficient detail to enable all parties to understand the impacts of the proposed water transfer;

(h) the estimated date for completion of the facilities and initial operation thereof;

(i) the benefits to the state if the transfer is approved;

(j) the benefits to the state if the transfer is not approved;

(k) any current beneficial use of the water that is proposed to be transferred, including minimum desirable streamflow requirements;

(l) any reasonably foreseeable future beneficial use of the water and the economic, environmental, public health and welfare and other impacts of approving or denying the transfer of water;

(m) conservation practice implementation plans, in a form prescribed by the chief engineer, for the use of water currently available to and being used by the applicant and for the use of water proposed to be transferred; and

(n) any additional factors which may be required by the chief engineer. (Authorized by K.S.A. 1983 Supp. 82a-1506; implementing K.S.A. 1983 Supp., 82a-1503; effective May 1, 1984.)

5-50-3. Hearing. Hearings on pending requests for a transfer of water shall be held before the panel. The panel shall have the power and authority to: (a) Administer oaths and affirmations;

(b) examine witnesses;

(c) regulate the course of the hearing;

(d) hear oral arguments;

(e) take testimony;

(f) rule upon offers of proof and accept evidence;

(g) dispose of procedural requests or similar matters; and

(h) take any other actions reasonably necessary to conduct the hearing. (Authorized by K.S.A. 1983 Supp. 82a-1506; implementing K.S.A. 1983 Supp. 82a-1503; effective May 1, 1984.)

5-50-4. Emergency use. When a temporary transfer of water has been approved, the chief engineer may: (a) Require the applicant to compile and submit records, as necessary, regarding the daily rate and quantity of water transferred and any other information that may appear pertinent to the continued need for emergency transfer; and

(b) require the person requesting the transfer to consider alternate sources of water so the continued transfer will not be necessary. (Authorized by K.S.A. 1983 Supp. 82a-1506; implementing K.S.A. 1983 Supp. 82a-1502; effective May 1, 1984.)

5-50-5. Extension of emergency transfer. If the emergency causing the necessity for the transfer of water continues beyond one year, the person requesting the transfer may file another application for transfer for emergency use. This application shall restate the need and the reasons why the need for transfer of water still exists and cannot be supplied by an alternate source. (Authorized by K.S.A. 1983 Supp. 82a-1506; implementing K.S.A. 1983 Supp. 82a-1502; effective May 1, 1984.)

5-50-6. Authority of the chief engineer. The chief engineer may: (a) Set the time, date and location for hearings regarding request for transfer of water;

(b) call meetings of the panel when necessary and set the time, date and location for any meeting of the panel;

(c) review all emergency transfers of water to determine whether the applicant complied with the terms, conditions and limitations of the emergency approval. (Authorized by K.S.A. 1983 Supp. 82a-1506; implementing K.S.A. 1983 Supp. 82a-1503; effective May 1, 1984.)

GUY E. GIBSON
Director
Division of Water Resources

Doc. No. 001728

EXHIBIT
4

[redacted]

From: McCormick, Paul <pmccormick@burnsmcd.com>
Sent: Thursday, November 21, 2019 1:09 PM
To: [redacted]
Cc: 91211
Subject: R9 Model File Summary
Attachments: Model Files Summary.pdf

Categories: Filed to ND

[redacted]

Attached is a summary of the files for the R9 model. There is a table listing the file sizes, number of lines per file, estimated number of pages to print the file, and a description of what the file represents. The summary lists the files for one run of the model. There are seven runs required to generate the data reported in the R9 Model report, and the file sizes for each model run are very similar, so multiply the totals by seven to arrive at a total for the file sizes, number of lines per file, and estimated number of printed pages. I included a printout of the first page of each file, to provide an example of what is contained in each file and the format.

These are the input and output files for the model. Using the input files, someone with a good working knowledge of hydrogeology and MODFLOW groundwater flow modeling could reproduce the same output. The USGS MODFLOW modeling software is open source software available to anyone. Turning the output into something usable and readable would require additional software in the form of a graphical user interface such as Groundwater Vistas or Visual Modflow, or could be done on a more manual basis with many other software options.

Please call or email with questions or comments.
Thanks,
Paul

Paul McCormick, PE* \ Burns & McDonnell
Associate Geological Engineer \ Water
O 816-823-7168 \ M 816-695-3940 \ F 816-822-3414
pmccormick@burnsmcd.com \ burnsmcd.com
9400 Ward Parkway \ Kansas City, MO 64114

View my profile on LinkedIn

Proud to be one of *FORTUNE*'s 100 Best Companies to Work For
Please consider the environment before printing this email.
*Licensed Professional Engineer in: MO, KS, IA, NE, SD

EXHIBIT
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The following file information is representative of a single model run, in this case the Base 51-year modeled simulation. There are seven model runs required to provide the results described in the R9 Model Report, all having similar sized files. Therefore it is reasonable to assume that the total file size and printed page requirements would be equal to seven times the amount indicated here.

Input or Output file Name	File Size (Kilo Bytes)	Number of Lines in File	Estimated Number of Pages Printed*	Input or Outpout File	MODLFOW File Description
R951yrBr2.nam	1	18	1	Input	The Name File specifies the names of the input and output files, associates each file name with a unit number and identifies the packages that will be used in the model.
R951yrBr2.glo	0	0	0	Output	The global listing file—if this type is not present, the LIST file is used for the global listing file as well as for the forward run listing file. (MODFLOW-2000 only)
R951yrBr2.lst	2,356,560	44,195,092	736,585	Output	The forward run listing file
R951yrBr2.bas	9,600	60,500	2,017	Input	The Basic package is used to specify certain data used in all models. These include 1. the locations of active, inactive, and specified head cells, 2. the head stored in inactive cells, and, 3. the initial heads in all cells.
R951yrBr2.dis	9,537	49,586	1,653	Input	The Discretization File is used to specify certain data used in all models. These include 1. the number of rows, columns and layers, 2.the cell sizes, 3. the presence of Quasi-3D confining beds, and 4. the time discretization.
R951yrBr2.huf	21,417	110,257	3,675	Input	The Hydrogeologic-Unit Flow package is used to specify properties controlling flow between cells. It allows you to specify these properties by "hydrogeologic unit". The unit boundaries are not required to correspond to layer boundaries. The properties of individual cells is synthesized from the properties of the hydrogeologic units that intersect the cell.
R951yrBr2.mult	25,010	141,181	4,706	Input	The Multiplier File is used to specify multiplier arrays which can be used to calculate layer variables from parameter values.
R951yrBr2.sfr	660,333	10,480,700	174,678	Input	The Streamflow-Routing package is used to simulate streams in a model. The flow in a stream is either routed instantaneously to downstream streams or lakes or (in MODFLOW-2005 or MODFLOW=LGR) routed using a kinematic wave equation. Flow can be routed through lakes defined in the Lake package. Unsaturated flow beneath streams can be simulated.
R951yrBr2.wel	875,856	36,907,887	615,131	Input	The Well package is used to simulate a specified flux to individual cells and specified in units of length3/time.
R951yrBr2.evt	822,662	5,204,453	173,482	Input	The Evapotranspiration package is used to simulate a head-dependent flux out of the model distributed over the top of the model and specified in units of length/time. Within MODFLOW, these rates are multiplied by the horizontal area of the cells to which they are applied to calculate the volumetric flux rates.
R951yrBr2.rch	728,124	374,668	12,489	Input	The Recharge package is used to simulate a specified flux distributed over the top of the model and specified in units of length/time. Within MODFLOW, these rates are multiplied by the horizontal area of the cells to which they are applied to calculate the volumetric flux rates.
R951yrBr2.chd	4	615	10	Input	The Time-Variant Specified-Head package is used to simulate specified head boundaries that can change within or between stress periods.
R951yrBr2.oc	36	3,674	61	Input	The Output Control Option is used to specify which head, drawdown, or budget data should be printed or saved.
R951yrBr2.gmg	1	5	1	Input	The Geometric Multigrid Solver is used to solve the finite difference equations in each step of a MODFLOW stress period.
R951yrBr2_streamflow.dat	535,906	3,503,396	58,390	Output	Output file of global forward run listing.
R951yrBr2.cbb	9081939	unknown, file too large to process	unknown, file too large to process	Output[1]	Binary output file of cell-by-cell flows. Unable to interpret without special software.
R951yrBr2.hds	1,009,267	4,435,499	73,925	Output[1]	Binary output file of individual cell heads. Unable to interpret without special software.
R951yrBr2.ddn	1,009,267	2,697,938	44,966	Output[1]	Binary output file of individual cell drawdowns. Unable to interpret without special software.
Total	**17,145,519**	**108,165,451**	**1,901,769**		

**Assumes 60 lines on a portrait format page, 30 lines on a landscape format page.*

[1] *Binary output files require additional software to interpret.*

```
GLOBAL 6 R951yrBr2.glo
LIST 7 R951yrBr2.lst
BAS6  1 R951yrBr2.bas
DIS  12 R951yrBr2.dis
HUF2 10 R951yrBr2.huf
MULT 13 R951yrBr2.mult
SFR 26 R951yrBr2.sfr
WEL 25 R951yrBr2.wel
EVT 27 R951yrBr2.evt
RCH 11 R951yrBr2.rch
CHD 15 R951yrBr2.chd
OC  22 R951yrBr2.oc
GMG 24 R951yrBr2.gmg
DATA(BINARY) 29 R951yrBr2.cbb
DATA 3 R951yrBr2_streamflow.dat
DATA(BINARY) 30 R951yrBr2.hds
DATA(BINARY) 31 R951yrBr2.ddn
```

```
                                  MODFLOW-2000
      U.S. GEOLOGICAL SURVEY MODULAR FINITE-DIFFERENCE GROUND-WATER FLOW MODEL
                           VERSION 1.19.01 03/25/2010


 This model run produced both GLOBAL and LIST files.  This is the LIST file.


 # MODFLOW2000 Basic Package
 #MODFLOW2000 Dataset Imported into Groundwater Vistas
 #
 THE FREE FORMAT OPTION HAS BEEN SELECTED
    7 LAYERS       180 ROWS       335 COLUMNS
   612 STRESS PERIOD(S) IN SIMULATION

 BAS6 -- BASIC PACKAGE, VERSION 6, 1/11/2000 INPUT READ FROM UNIT      1
         35 ELEMENTS IN IR ARRAY ARE USED BY BAS

 WEL6 -- WELL PACKAGE, VERSION 6, 1/11/2000 INPUT READ FROM UNIT     25
 # MODFLOW2000 Well Package
 No named parameters
 MAXIMUM OF  60306 ACTIVE WELLS AT ONE TIME
 CELL-BY-CELL FLOWS WILL BE SAVED ON UNIT     29
     241224 ELEMENTS IN RX ARRAY ARE USED BY WEL

 EVT6 -- EVAPOTRANSPIRATION PACKAGE, VERSION 6, 12/14/2000
         INPUT READ FROM UNIT     27
 # MODFLOW2000 Evapotranspiration Package
 No named parameters
 OPTION 2 -- EVAPOTRANSPIRATION FROM ONE SPECIFIED NODE IN EACH VERTICAL COLUMN
 CELL-BY-CELL FLOWS WILL BE SAVED ON UNIT     29
     180900 ELEMENTS IN RX ARRAY ARE USED BY EVT
      60300 ELEMENTS IN IR ARRAY ARE USED BY EVT

 RCH6 -- RECHARGE PACKAGE, VERSION 6, 1/11/2000 INPUT READ FROM UNIT     11
 # MODFLOW2000 Recharge Package
 No named parameters
 OPTION 3 -- RECHARGE TO HIGHEST ACTIVE NODE IN EACH VERTICAL COLUMN
 CELL-BY-CELL FLOWS WILL BE SAVED ON UNIT     29
      60300 ELEMENTS IN RX ARRAY ARE USED BY RCH
      60300 ELEMENTS IN IR ARRAY ARE USED BY RCH

 CHD6 -- TIME-VARIANT SPECIFIED-HEAD PACKAGE, VERSION 6, 1/11/2000
 INPUT READ FROM UNIT     15
 # MODFLOW2000 Constant-Head Boundary Package (CHD)
 No named parameters
 MAXIMUM OF    757 TIME-VARIANT SPECIFIED-HEAD CELLS AT ONE TIME
       3785 ELEMENTS IN RX ARRAY ARE USED BY CHD

 SFR2 -- STREAMFLOW ROUTING PACKAGE, VERSION 2.7, 03/16/2009
         INPUT READ FROM UNIT  26
 # SFR Package for MODFLOW2000


 NUMBER OF STREAM NODES IS 5705

 NUMBER OF STREAM SEGMENTS IS 5705
```

```
# MODFLOW2000 Basic Package
#MODFLOW2000 Dataset Imported into Groundwater Vistas
#
FREE SHOWPROGRESS
         1         1(25I3)                        -1
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0 -1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  1  1  1  1  1  1  1  1  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  0  0
  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  1  1  1  1  1
  1  1  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1
  1  1  1  1  1  1  1  1  1  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  1  1  0  1  1  1  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1
  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
  1  1  1  1  1  1  0  1  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1
  1  1  1  1  1  1  1  1  1  1  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1
```

```
# MODFLOW2000 Multiplier Array File
# Groundwater Vistas writes all layers regardless of whether
# they are being used.
  28
MHUFKX1
        13   1.00000(12E15.6)                   -1
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
# MODFLOW2000 HUF Input File
  29  0.000000e+000  9  28  0  0
  0  0  0  0  0  0  0
  0  0  0  0  0  0  0
Qa1
        10   1.00000(10E20.12)                  -1
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03 -9.999000000000e+03
```

```
# MODFLOW2000 Multiplier Array File
# Groundwater Vistas writes all layers regardless of whether
# they are being used.
  28
MHUFKX1
        13   1.00000(12E15.6)                   -1
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
# SFR Package for MODFLOW2000
 5705  5705  0  0  1.000000e+000  1.000000e-002  29  3
  1  40  64  1  1  910.000000
  1  40  65  2  1  3034.000000
  1  40  66  3  1  2907.000000
  1  40  67  4  1  3418.000000
  1  40  68  5  1  3798.000000
  1  41  68  6  1  879.000000
  1  41  69  7  1  3981.000000
  1  41  70  8  1  4540.000000
  1  41  71  9  1  4711.000000
  1  42  71  10  1  1026.000000
  1  42  72  11  1  4383.000000
  1  42  73  12  1  4993.000000
  1  42  74  13  1  4940.000000
  1  43  74  14  1  1188.000000
  1  43  75  15  1  4788.000000
  1  43  76  16  1  5643.000000
  1  43  77  17  1  4779.000000
  1  43  78  18  1  662.000000
  1  44  78  19  1  7016.000000
  1  45  78  20  1  3400.000000
  1  45  79  21  1  4566.000000
  1  46  79  22  1  2072.000000
  1  46  80  23  1  3313.000000
  1  47  80  24  1  3491.000000
  1  47  81  25  1  4534.000000
  1  46  81  26  1  855.000000
  1  46  82  27  1  3026.000000
  1  47  82  28  1  1958.000000
  1  47  83  29  1  6295.000000
  1  47  84  30  1  1843.000000
  1  48  84  31  1  6122.000000
  1  49  84  32  1  800.000000
  1  49  85  33  1  6330.000000
  1  50  85  34  1  5480.000000
  1  51  85  35  1  6338.000000
  1  52  85  36  1  4191.000000
  1  47  53  37  1  1836.000000
  1  48  53  38  1  992.000000
  1  47  53  39  1  390.000000
  1  47  54  40  1  2118.000000
  1  48  54  41  1  521.000000
  1  48  55  42  1  2410.000000
  1  48  56  43  1  3736.000000
  1  48  57  44  1  3718.000000
  1  48  58  45  1  2673.000000
  1  47  58  46  1  2429.000000
  1  47  59  47  1  2066.000000
  1  46  59  48  1  4760.000000
  1  46  60  49  1  3816.000000
  1  46  61  50  1  5952.000000
  1  46  62  51  1  4049.000000
  1  46  63  52  1  4213.000000
  1  45  63  53  1  558.000000
  1  45  64  54  1  643.000000
  1  46  64  55  1  4377.000000
  1  46  65  56  1  5423.000000
```

```
# MODFLOW2000 Well Package
 60306 29
 60306 0
 1 1 128 0.000000e+000
 1 2 99 0.000000e+000
 1 2 127 0.000000e+000
 1 2 128 -8.988850e-001
 1 2 129 -7.454470e-001
 1 2 130 -7.352260e-001
 1 2 131 -8.552150e-001
 1 2 132 -7.797590e-001
 1 2 133 -8.318470e-001
 1 2 134 -6.464050e-001
 1 2 135 -8.652220e-001
 1 2 136 0.000000e+000
 1 3 72 0.000000e+000
 1 3 73 0.000000e+000
 1 3 76 0.000000e+000
 1 3 77 0.000000e+000
 1 3 91 0.000000e+000
 1 3 96 0.000000e+000
 1 3 97 1093.530000
 1 3 98 -2105.620000
 1 3 99 -4608.030000
 1 3 100 -6912.570000
 1 3 101 -3760.530000
 1 3 102 0.000000e+000
 1 3 109 0.000000e+000
 1 3 125 0.000000e+000
 1 3 126 -8.652540e-001
 1 3 127 4.128490
 1 3 136 -3.668790
 1 3 277 0.000000e+000
 1 3 278 0.000000e+000
 1 3 280 0.000000e+000
 1 3 281 -618.643000
 1 3 282 0.000000e+000
 1 3 286 0.000000e+000
 1 4 69 0.000000e+000
 1 4 70 -22017.200000
 1 4 71 -4008.060000
 1 4 72 -8.945810e-001
 1 4 73 -5.916390e-001
 1 4 74 3892.290000
 1 4 75 5448.410000
 1 4 76 2574.460000
 1 4 77 -2259.450000
 1 4 78 -1375.320000
 1 4 79 -577.953000
 1 4 80 -3703.740000
 1 4 81 -2493.540000
 1 4 82 1.202870e-001
 1 4 83 2.920280e-001
 1 4 84 -22.331600
 1 4 85 -24.281700
 1 4 86 6.611320e-001
 1 4 87 1.322210
 1 4 88 1.623560
```

```
# MODFLOW2000 Evapotranspiration Package
PARAMETER  0
 2 29
 1 1 1 1
        27   1.00000(10e20.12)                  -1
  3.089000000000e+03  3.087000000000e+03  3.080000000000e+03  3.076000000000e+03  3.069000000000e+03
  3.048000000000e+03  3.029000000000e+03  3.012000000000e+03  2.988000000000e+03  2.968000000000e+03
  2.869000000000e+03  2.884000000000e+03  2.946000000000e+03  3.000000000000e+03  3.004000000000e+03
  2.999000000000e+03  2.993000000000e+03  2.987000000000e+03  2.984000000000e+03  2.979000000000e+03
  2.973000000000e+03  2.966000000000e+03  2.961000000000e+03  2.955000000000e+03  2.948000000000e+03
  2.945000000000e+03  2.933000000000e+03  2.927000000000e+03  2.923000000000e+03  2.919000000000e+03
  2.914000000000e+03  2.878000000000e+03  2.853000000000e+03  2.807000000000e+03  2.788000000000e+03
  2.814000000000e+03  2.829000000000e+03  2.845000000000e+03  2.850000000000e+03  2.844000000000e+03
  2.806000000000e+03  2.774000000000e+03  2.767000000000e+03  2.813000000000e+03  2.832000000000e+03
  2.842000000000e+03  2.827000000000e+03  2.786000000000e+03  2.757000000000e+03  2.716000000000e+03
  2.752000000000e+03  2.784000000000e+03  2.760000000000e+03  2.751000000000e+03  2.791000000000e+03
  2.772000000000e+03  2.744000000000e+03  2.744000000000e+03  2.700000000000e+03  2.687000000000e+03
  2.711000000000e+03  2.736000000000e+03  2.758000000000e+03  2.741000000000e+03  2.672000000000e+03
  2.622000000000e+03  2.610000000000e+03  2.660000000000e+03  2.706000000000e+03  2.648000000000e+03
  2.658000000000e+03  2.708000000000e+03  2.705000000000e+03  2.714000000000e+03  2.667000000000e+03
  2.633000000000e+03  2.626000000000e+03  2.598000000000e+03  2.627000000000e+03  2.664000000000e+03
  2.670000000000e+03  2.670000000000e+03  2.662000000000e+03  2.651000000000e+03  2.637000000000e+03
  2.629000000000e+03  2.622000000000e+03  2.614000000000e+03  2.600000000000e+03  2.583000000000e+03
  2.573000000000e+03  2.567000000000e+03  2.562000000000e+03  2.550000000000e+03  2.525000000000e+03
  2.538000000000e+03  2.551000000000e+03  2.581000000000e+03  2.577000000000e+03  2.577000000000e+03
  2.578000000000e+03  2.571000000000e+03  2.559000000000e+03  2.539000000000e+03  2.525000000000e+03
  2.518000000000e+03  2.490000000000e+03  2.510000000000e+03  2.519000000000e+03  2.506000000000e+03
  2.525000000000e+03  2.531000000000e+03  2.517000000000e+03  2.492000000000e+03  2.458000000000e+03
  2.499000000000e+03  2.509000000000e+03  2.497000000000e+03  2.484000000000e+03  2.496000000000e+03
  2.492000000000e+03  2.485000000000e+03  2.466000000000e+03  2.442000000000e+03  2.458000000000e+03
  2.450000000000e+03  2.450000000000e+03  2.457000000000e+03  2.431000000000e+03  2.424000000000e+03
  2.443000000000e+03  2.451000000000e+03  2.432000000000e+03  2.445000000000e+03  2.432000000000e+03
  2.437000000000e+03  2.432000000000e+03  2.417000000000e+03  2.401000000000e+03  2.405000000000e+03
  2.391000000000e+03  2.349000000000e+03  2.350000000000e+03  2.378000000000e+03  2.368000000000e+03
  2.356000000000e+03  2.354000000000e+03  2.321000000000e+03  2.292000000000e+03  2.279000000000e+03
  2.259000000000e+03  2.282000000000e+03  2.292000000000e+03  2.285000000000e+03  2.257000000000e+03
  2.224000000000e+03  2.192000000000e+03  2.197000000000e+03  2.198000000000e+03  2.197000000000e+03
  2.191000000000e+03  2.170000000000e+03  2.169000000000e+03  2.162000000000e+03  2.154000000000e+03
  2.145000000000e+03  2.131000000000e+03  2.121000000000e+03  2.114000000000e+03  2.106000000000e+03
  2.102000000000e+03  2.087000000000e+03  2.089000000000e+03  2.086000000000e+03  2.081000000000e+03
  2.075000000000e+03  2.076000000000e+03  2.066000000000e+03  2.061000000000e+03  2.045000000000e+03
  2.030000000000e+03  2.016000000000e+03  1.992000000000e+03  1.972000000000e+03  1.953000000000e+03
  2.024000000000e+03  2.038000000000e+03  2.023000000000e+03  1.999000000000e+03  2.007000000000e+03
  1.965000000000e+03  1.987000000000e+03  1.999000000000e+03  1.960000000000e+03  1.971000000000e+03
  2.007000000000e+03  2.030000000000e+03  2.009000000000e+03  1.973000000000e+03  1.956000000000e+03
  1.990000000000e+03  1.971000000000e+03  1.949000000000e+03  1.944000000000e+03  1.943000000000e+03
  1.942000000000e+03  1.948000000000e+03  1.961000000000e+03  1.943000000000e+03  1.896000000000e+03
  1.930000000000e+03  1.941000000000e+03  1.953000000000e+03  1.914000000000e+03  1.939000000000e+03
  1.962000000000e+03  1.988000000000e+03  2.004000000000e+03  1.995000000000e+03  1.995000000000e+03
  1.974000000000e+03  1.986000000000e+03  1.972000000000e+03  1.952000000000e+03  1.936000000000e+03
  1.935000000000e+03  1.908000000000e+03  1.941000000000e+03  1.936000000000e+03  1.946000000000e+03
  1.938000000000e+03  1.930000000000e+03  1.902000000000e+03  1.928000000000e+03  1.925000000000e+03
  1.929000000000e+03  1.915000000000e+03  1.910000000000e+03  1.929000000000e+03  1.933000000000e+03
  1.940000000000e+03  1.946000000000e+03  1.930000000000e+03  1.913000000000e+03  1.903000000000e+03
  1.892000000000e+03  1.903000000000e+03  1.914000000000e+03  1.919000000000e+03  1.898000000000e+03
  1.883000000000e+03  1.866000000000e+03  1.891000000000e+03  1.894000000000e+03  1.907000000000e+03
  1.884000000000e+03  1.893000000000e+03  1.906000000000e+03  1.907000000000e+03  1.907000000000e+03
  1.886000000000e+03  1.879000000000e+03  1.860000000000e+03  1.849000000000e+03  1.851000000000e+03
```

```
# MODFLOW2000 Recharge Package
PARAMETER  0
 3 29
 1 1
        11   1.00000(10e20.12)                  -1
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00  0.000000000000e+00
```

```
# MODFLOW2000 Constant-Head Boundary Package (CHD)
 757
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
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 0 0
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 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
 0 0
```

```
0 0 30 31
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
0 0 0 0
0 1 1 1
0 0 1 1
0 1 1 0
0 0 0 0
0 1 1 0
```

```
 10.000000    3 1.000000  500
 3.000000e-001  2  1
  0  0 2.000000e-001 1.000000e-002 3.000000
 0.000000e+000
```

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                                  MODFLOW-2000
     U.S. GEOLOGICAL SURVEY MODULAR FINITE-DIFFERENCE GROUND-WATER FLOW MODEL
                          VERSION 1.19.01 03/25/2010


 This model run produced both GLOBAL and LIST files.  This is the GLOBAL file.

 GLOBAL LISTING FILE: C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.glo
                         UNIT     3

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.lst
 FILE TYPE:LIST   UNIT      2   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.bas
 FILE TYPE:BAS6   UNIT      1   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.huf
 FILE TYPE:HUF2   UNIT     10   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.dis
 FILE TYPE:DIS   UNIT     12   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.mult
 FILE TYPE:MULT   UNIT     13   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.wel
 FILE TYPE:WEL   UNIT     25   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.evt
 FILE TYPE:EVT   UNIT     27   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.rch
 FILE TYPE:RCH   UNIT     11   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.oc
 FILE TYPE:OC   UNIT     22   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.chd
 FILE TYPE:CHD   UNIT     15   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.sfr
 FILE TYPE:SFR   UNIT     26   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.gmg
 FILE TYPE:GMG   UNIT     24   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.cbb
 FILE TYPE:DATA(BINARY)   UNIT     29   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.hds
 FILE TYPE:DATA(BINARY)   UNIT     30   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2.ddn
 FILE TYPE:DATA(BINARY)   UNIT     31   STATUS:

 OPENING C:\Users\pmccormick\Documents\Projects\R9\Base51yr\R951yrBr2_streamflow.dat
 FILE TYPE:DATA   UNIT      3   STATUS:
```

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00000000h: 03 00 00 00 01 00 00 00 00 80 F3 41 00 80 F3 41 ; .........€óA.€óA
00000010h: 20 20 20 20 20 20 20 20 20 20 20 20 48 45 41 44 ;             HEAD
00000020h: 4F 01 00 00 B4 00 00 00 01 00 00 00 00 3C 1C C6 ; O...´........<.Æ
00000030h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000040h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000050h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000060h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000070h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000080h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000090h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000a0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000b0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000c0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000d0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000e0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000f0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000100h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000110h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000120h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000130h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000140h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000150h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000160h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000170h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000180h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000190h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001a0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001b0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001c0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001d0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001e0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001f0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000200h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000210h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000220h: 00 3C 1C C6 00 3C 1C C6 00 50 11 45 00 3C 1C C6 ; .<.Æ.<.Æ.P.E.<.Æ
00000230h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000240h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000250h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000260h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000270h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000280h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000290h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002a0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002b0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002c0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002d0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002e0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002f0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000300h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000310h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000320h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000330h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000340h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000350h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000360h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000370h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000380h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000390h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
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00000000h: 03 00 00 00 01 00 00 00 20 20 20 20 20 20 20 20 ; ........
00000010h: 20 53 54 4F 52 41 47 45 4F 01 00 00 B4 00 00 00 ;  STORAGEO...´...
00000020h: 07 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000030h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000040h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000050h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000060h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000070h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000080h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000090h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000000a0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000000b0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000000c0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000000d0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000000e0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000000f0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000100h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000110h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000120h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000130h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000140h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000150h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000160h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000170h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
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00000190h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
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000001b0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
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000001d0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000001e0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000001f0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000200h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000210h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000220h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000230h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000240h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000250h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000260h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000270h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000280h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000290h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000002a0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000002b0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000002c0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000002d0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000002e0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
000002f0h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000300h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000310h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000320h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000330h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000340h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000350h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000360h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000370h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000380h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
00000390h: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ; ................
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00000000h: 03 00 00 00 01 00 00 00 00 80 F3 41 00 80 F3 41 ; .........€óA.€óA
00000010h: 20 20 20 20 20 20 20 20 44 52 41 57 44 4F 57 4E ;         DRAWDOWN
00000020h: 4F 01 00 00 B4 00 00 00 01 00 00 00 00 3C 1C C6 ; O...´.........<.Æ
00000030h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000040h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000050h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000060h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000070h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000080h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000090h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000a0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000b0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000c0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000d0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000e0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000000f0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000100h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000110h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000120h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000130h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000140h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000150h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000160h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000170h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000180h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000190h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001a0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001b0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001c0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001d0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001e0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000001f0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000200h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000210h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000220h: 00 3C 1C C6 00 3C 1C C6 00 00 00 00 00 3C 1C C6 ; .<.Æ.<.Æ.....<.Æ
00000230h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000240h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000250h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000260h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000270h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000280h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000290h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002a0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002b0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002c0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002d0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002e0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
000002f0h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
00000300h: 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 00 3C 1C C6 ; .<.Æ.<.Æ.<.Æ.<.Æ
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STATE OF KANSAS

DEPARTMENT OF AGRICULTURE
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GOVERNOR JEFF COLYER, M.D.
JACKIE MCCLASKEY, SECRETARY OF AGRICULTURE

March 9, 2018

Big Bend Groundwater Management District #5
125 S. Main
Stafford, KS 67578

Mr. Feril,

Per your request please find enclosed two copies of a USB drive, each containing the modflow modeling files associated with the R9 Ranch evolution related to the pending application for the City of Hays.

This flash drive contains backup files provided to KDA-DWR by Burns & McDonnell Engineers for model scenarios described in the R9 Ranch Modeling Letter Report to Toby Dougherty, City Manager, Hays, KS, dated February 13, 2018. The backup files include seven zipfiles totaling 30 Gbytes in size containing groundwater model files corresponding to scenarios for the report, an Excel file, "R9 Modeled Well Flow Rates.xlsx" associated with the scenarios, and a “read me” text file (Model files readme.txt). The seven zipfiles are associated with model scenarios described in the report; the “read me” file provides some additional explanation.

By copy of this letter I am also sending one USB drive to Richard Wenstrom.

If you experience any problems with the files please feel free to contact our office.

Sincerely,

David W. Barfield, P.E.
Chief Engineer
Division of Water Resources

DWB:kh

CC: Richard Wenstrom, WaterPACK

EXHIBIT
7

Traster, David

From: Barfield, David <David.Barfield@ks.gov>
Sent: Thursday, July 5, 2018 3:03 PM
To: Toby Dougherty; Brian Meier (bmeier@burnsmcd.com); Traster, David
Subject: FW: R9 Ranch CU Analysis for Water PACK 20161124_20171112 corrrected (002).pdf
Attachments: R9 Ranch CU Analysis for Water PACK 20161124_20171112 corrrected (002).pdf

FYI,

Please distribute to those who need it.

We will be posting this on our web site.

Thanks.

David

From: Kent & Suzanne Moore [mailto:ksmfarm@sctelcom.net]
Sent: Thursday, July 5, 2018 12:46 PM
To: Barfield, David <David.Barfield@ks.gov>
Cc: Richard Wenstrom <rediscoveryii@hotmail.com>; Pat Janssen <patmilanjanssen@gmail.com>; akeller@kelbli.com
Subject: R9 Ranch CU Analysis for Water PACK 20161124_20171112 corrrected (002).pdf

Dear David,

Attached you will find the initial report prepared by Andy Keller for his Consumptive Use analysis that Water PACK presented at the July 21, 2018 meeting in Greensburg. I hope that you are now in receipt of a letter from Water PACK offering to bring Andy to Kansas so that he can meet with you and your staff to further detail the conclusions he has reached to this point.

Please let us know if DWR is receptive to having Dr. Keller in Manhattan at some point in the near future.

Thank you for having the informational meeting in regard to the Hays/R9 water transfer process.

Sincerely

Kent Moore
President, Water PACK BOD

In the Matter of the City of Hays' and the City of Russell's Applications for Approval to Change the Place of Use, the Point of Diversion ~~or~~and the Use Made of the Water Under an Existing Water Right, regarding the following existing water rights:

FILE NOS.
21,729-D1; 21,729-D2; 21,730; 21,731; 21,732-D1; 21,732-D2; 21,733; 21,734; 21,841; 21,842; 22,325; 22,326; 22,327; 22,329; 22,330; 22,331; 22,332; 22,333; 22,334; 22,335; 22,338; 22,339; 22,340; 22,341; 22,342; 22,343; 22,345; 22,346; 27,760; 29,816; 30,083; and 30,084.

MASTER ORDER CONTINGENTLY APPROVING CHANGE APPLICATIONS REGARDING R9 WATER RIGHTS

The Chief Engineer of the Division of Water Resources, Kansas Department of Agriculture, after giving careful consideration to the Change Applications submitted by the Cities in the above matter, makes the following factual findings, legal conclusions, and order, which are contingent on the approval of the Cities' Water Transfer Application and on other conditions, as explained herein.

CONTENTS

EXHIBIT
9

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DEFINITIONS

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The following terms, as used in this Master Order and in the Change Approvals, are defined as follows:

1. **"BGW"** means Balleau Groundwater, Inc., modeling consultants hired by GMD5 to study issues concerning the Project and the Change Applications.

2. **"BMcD"** means Burns & McDonnell, engineering and modeling consultants hired by the Cities to assist with issues concerning the Project and the Change Applications.

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~~1.~~3. **"Cities"** mean, collectively, the City of Hays, Kansas, the City of Russell, Kansas, and the respective successors and assigns of any of such Cities' ownership interests in the R9 Water Rights. **"City"** means either the City of Hays, Kansas, or the City of Russell, Kansas, as the case may be, along with such City's successors and assigns of any of such City's ownership interest in the R9 Water Rights.

~~2.~~4. **"Change Applications"** means the applications that the ~~Applicants~~Cities originally submitted to the Chief Engineer on June 26, 2015, as later amended by various amendments, which applications request contingent approval to change the use made of the water, the places of use, and the points of diversion under the R9 Water Rights.

~~3.~~5. **"Change Approvals"** means the individual contingent approvals of the Change Applications, which approvals concern the various individual R9 Water Rights, are signed and issued by the Chief Engineer, and are attached to this Master Order as **Exhibits 1~~–~~32** and incorporated herein.

~~4.~~6. **"DWR"** means the Division of Water Resources of the Kansas Department of Agriculture.

7. **"DWR Review"** means the document dated March 26, 2019 and entitled *DWR Staff Review of R9 Ranch Pumping and Water Levels*, which is posted on DWR's website for this matter and archived with DWR's files for this matter.

~~5.~~8. **"GMD5"** means the Big Bend Groundwater Management District No. 5.

~~6.~~9. **"Hays"** means the City of Hays, Kansas.

~~7.~~10. **"KAPA"** means the Kansas Administrative Procedure Act, K.S.A. 77-501, *et seq.*

11. **"KBE"** means Keller-Bliesner Engineering, LLC, the water consulting firm headed by Dr. Andrew Keller of Logan, Utah, and whom Water PACK hired to study issues concerning the Project and the Change Applications.

~~8.~~12. **"KJRA"** means the Kansas Judicial Review Act, K.S.A. 77-601, *et seq.*

~~9.~~13. **"Limitation"** means a term or condition imposed by the Chief Engineer on a water right pursuant to K.S.A. 82a-707(e), K.S.A. 82a-708b, K.A.R. 5-5-8, and/or K.A.R. 5-5-9 (1994 version), that, depending on the particular circumstances, limits the authorized rate(s) of diversion ~~-~~and/or the authorized annual quantity(ies) of water when a junior water right(s) is combined with a senior water right(s), to a rate of diversion or annual quantity of water that is less than the sum of the combined water rights' individual authorized rates of diversion or annual quantities of water. Depending on the particular circumstances, Limitations might be added, removed, or modified in an approval of an application to change the characteristics of a water right. Limitations are binding conditions unless and until they are removed or modified in a subsequent final order issued by the Chief Engineer. Specific Limitations are further defined herein (see the Reasonable-Needs Limitations and the TYRA Limitation).

~~10.~~14. **"Master Order"** means this document signed and issued by the Chief Engineer, including its **Appendices A** ~~through G~~ **I**, and **Exhibits 1 – 34**, all of which are incorporated into this Master Order.

~~11.~~15. **"Project"** means the diversion and transportation infrastructure planned by the Cities, including any future infrastructure expansions, to divert water from the R9 Water Rights and to transport it for municipal use in ~~the City of Hays, Kansas, and its immediate vicinity as well as related areas in the Northeast Quarter (NE/4) of Section 19 and the Northwest Quarter (NW/4) of Section 36, in Township 13 South, Range 18 West, Ellis County, Kansas; and in the City of Russell, Kansas, and its immediate vicinity.~~such places that are described on **Appendix F**, in addition to such other places that may be approved by DWR in the future. The Project's transportation infrastructure, to the extent that it delivers water for municipal use in the aforementioned ~~areas~~specific places, and to other places and users upon approval of

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any future change applications, ~~amounts to~~is a "common distribution system" as that term is used in K.A.R. 5-1-1(vv).

16. **"Public Meeting"** means the informational public meeting that the Chief Engineer held in Greensburg, Kiowa County, Kansas, on June 21, 2018, to explain the issues being considered regarding the Change Applications and to receive comments from the public.

~~12.~~17. **"R9 Ranch"** means that ranch historically known as such and comprised of various parcels of land located in Edwards County, Kansas, as visually depicted on the map attached as **Exhibit 33** and as more specifically described in the legal description attached as **Appendix A**.

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~~13.~~18. **"R9 Water Rights"** means the existing, certified water appropriation rights with points of diversion on the R9 Ranch and assigned file numbers 21,729-D1; 21,729-D2; 21,730; 21,731; 21,732-D1; 21,732-D2; 21,733; 21,734; 21,841; 21,842; 22,325; 22,326; 22,327; 22,329; 22,330; 22,331; 22,332; 22,333; 22,334; 22,335; 22,338; 22,339; 22,340; 22,341; 22,342; 22,343; 22,345; 22,346; 27,760; 29,816; 30,083; and 30,084.

19. **"Reasonable-Need Limitations"** means those certain Limitations explained herein in Subsection IV.B. and ordered herein in Subsection XIII.B.

~~14.~~20. **"Region Five"** means Phillips, Rooks, Ellis, Rush, Pawnee, Edwards, Kiowa, and Comanche Counties in Kansas.

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~~15.~~21. **"Region Six"** means Smith, Jewell, Osborne, Mitchell, Russell, Lincoln, Ellsworth, Barton, Rice, Stafford, Reno, Pratt, Kingman, Barber, and Harper Counties in Kansas.

~~16.~~22. **"Russell"** means the City of Russell, Kansas.

~~17.~~23. **"Secretary"** means the Secretary of the Kansas Department of Agriculture.

24. **"TYRA Limitation"** means the Ten-Year Rolling Aggregate Limitation, that certain Limitation explained herein in Subsection IV.A. and ordered herein in Subsection XIII.A.

~~18.~~25. **"Transfer Application"** means the Cities' application, as amended, to transfer water for the Project, which application originally was filed on January 6, 2016.

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~~19.~~26. **"Transfer Order"** means an order issued by the water transfer hearing panel pursuant to the Kansas Water Transfer Act, K.S.A. 82a-1501, *et seq*.

~~20.~~27. **"Treatment Losses"** means the quantity of the waste stream from the treatment of the water from the R9 Water Rights (whether treatment takes place on the R9 Ranch or before or after delivery to any water user) in order to meet regulatory standards and aesthetic concerns.

~~21.~~28. **"USGS"** means the United States Geological Survey.

29. **"Water PACK"** means the Water Protection Association of Central Kansas.

GENERAL APPLICABLE LAW

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~~22.~~30. The Chief Engineer is charged with the responsibility "to control, conserve, regulate, allot and aid in the distribution of the water resources of the state for the benefits and beneficial uses of all of its inhabitants in accordance with the rights of priority of appropriation." K.S.A. 82a-706.

~~23.~~31. The Chief Engineer is permitted to adopt, amend, and enforce reasonable rules, regulations, and standards to achieve the purposes of the Kansas Water Appropriation Act. K.S.A. 82a-706a.

~~24.~~32. In approving a new application or change application, the Chief Engineer may approve an application for a smaller amount of water than requested and may approve an application "upon such terms, conditions, and limitations as he or she may deem necessary for the protection of the public interest." K.S.A. 82a-712; *see also* K.S.A. 82a-708b.

~~25.~~33. The Kansas Water Appropriation Act permits owners of water appropriation rights to apply for permission to change the place of use, the point of diversion, or the use made of the water without losing priority of right. K.S.A. 82a-708b(a).

~~26.~~34. In order to change these characteristics, an applicant must demonstrate that the change is reasonable, that it will not impair existing rights, and that water will be diverted from the same local source of supply. *Id.*

~~27.~~35. Applicable DWR regulations govern the quantities addressed in this Master Order, including prohibiting an increase in consumptive use as a result of the change in use, *see, e.g.*, K.A.R. 5-5-9(a) (1994 version); prohibiting the authorized quantity for the new use from exceeding the maximum annual quantity for the original use that was authorized by the particular water right, K.A.R. 5-5-9(a)(4) (1994 version); and imposing a reduction or placing a Limitation on the quantity reasonably needed for the new use, K.A.R. 5-5-9(a)(6) (1994 version).

~~28.~~36. Approval of a change application is not permitted if a proposed change will cause the extent of consumptive use to increase substantially. K.A.R. 5-5-3.

~~29.~~37. Approval of a change from irrigation to another type of beneficial use is not permitted if the change will cause the net consumptive use from the local source of

water supply to be greater than the net consumptive use from the local source of water supply by the original irrigation use. K.A.R. 5-5-9(a) (1994 version).

~~30.~~38. Appropriation rights in excess of the reasonable needs of the appropriator are not allowed. K.S.A. 82a-707(e).

~~31.~~39. For perfected (certified) water rights being changed to a new use, no statute or regulation specifically defines the time period that the Chief Engineer must consider when determining the appropriator's reasonable needs.

~~32.~~40. Approvals of applications to change a point of diversion generally require that new wells be "completed substantially as shown on aerial photograph, topographic map, or plat" as defined at K.A.R. 5-1-1(q).

~~33.~~41. A well with a source of supply in an alluvium that is in a basin that is fully appropriated or is in an area closed to new appropriations may not be moved more than 10 percent closer to the centerline of the stream. K.A.R. 5-5-13.

~~34.~~42. Regulations recommended by GMD5 ~~and,~~ adopted by the Chief Engineer ~~for applicability,~~ and applicable within GMD5 and to the Cities' R9 Water Rights include several well-location requirements:

a. ~~The municipal~~Municipal wells may not be moved more than 2,640 feet from the currently authorized points of diversion. *See* K.A.R. 5-25-2a(a).

b. All municipal wells must be completed in the aquifer or aquifers in which the currently authorized wells were authorized to be completed. *See* K.A.R. 5-25-2a(d).

c. All municipal wells must be more than 1,320 feet from wells that carry an earlier priority except those wells owned by the Cities. *See* K.A.R. 5-25-2(a).

d. All municipal wells must be more than 660 feet from all existing domestic wells, except those domestic wells owned by the Cities. *See id*.

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MIXED FINDINGS OF FACT AND CONCLUSIONS OF LAW

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43. After careful review and consideration of the documents and information referenced herein, the Chief Engineer finds that the Change Applications should be contingently approved for the reasons and on the terms and conditions set out in this Master Order, which includes the various Change Approvals attached as Exhibits 1–32 that are incorporated herein.

I. Background

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A. General Background

~~35.~~44. The Cities have determined that they need access to an additional source of water to meet their future, long-term needs, due to existing water shortages, projected population increases, and other regional water needs. To help meet these increased water needs, the Cities purchased the R9 Ranch and the R9 Water Rights and conceived of the Project. The R9 Ranch is within the boundaries of GMD5.

~~36.~~45. Before the Project can be lawfully realized, changes to the use made of the water, the places of use, and the points of diversion for the R9 Water Rights must be contingently approved by the Chief Engineer. *See* K.A.R. 5-50-2(x)(2)(A)–(C); K.A.R. 5-50-7(b)(1)–(3). Then, the actual intended transfer of the water from the R9 Ranch to the Cities and otherwise in accordance with the Project~~,~~ must be approved by the water transfer hearing panel in accordance with the Water Transfer Act, K.S.A. 82a-1501, *et seq*.

~~37.~~46. The approvals made by the Chief Engineer in this Master Order are contingent and conditioned upon certain factors as provided herein, including the Cities later receiving a Transfer Order as provided herein.

B. The Change Applications

~~38.~~47. On June 26, 2015, the ~~Applicants~~Cities submitted the original Change Applications, which applications, as amended, seek contingent approval of changes of the use made of water, the places of use, and the points of diversion under the R9 Water Rights.

~~39.~~48. The Change Applications were filed in anticipation of the Cities' desired transfer, in accordance with the Project and pursuant to the Water Transfer Act, of more than 2,000 acre-feet of water per year from the R9 Ranch to Schoenchen, Kansas, and then on to Hays and to Russell.

~~40.~~49. On January 6, 2016, the Cities filed the Transfer Application, which application necessarily was incomplete when filed because the Change Applications had not yet been contingently approved by the Chief Engineer as required by K.A.R. 5-50-2(x)(2)(A)–(C) and K.A.R. 5-50-7(b)(1)–(3).

~~41.~~50. The original Change Applications sought the Chief Engineer's contingent approval to convert 7,625.~~70~~7 acre-feet of water per calendar year from irrigation to municipal use. The Change Applications were specifically conditioned upon (1) the entry of this Master Order as a final, non-appealable order; and (2) a final, non-appealable order approving the Transfer Application for a quantity of at least 7,625.7 acre-feet of water per calendar year.

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~~42.~~51. After extensive discussion between the Cities and the Chief Engineer, the Cities agreed with nearly all of the terms set out in this Master Order and amended the Change Applications accordingly, including ~~an agreement to lower~~amendments reducing the total quantity ~~that the Cities initially requested be converted from irrigation to municipal use~~ from 7,625.7 acre-feet of water per calendar year to 6,756.8 acre-feet of water per calendar year for municipal use, as long as this Master Order and its incorporated Change Approvals are issued and become final orders on the exact terms as originally issued on March 27, 2019, or on amended terms that are acceptable to the Cities.

~~43. The Cities' Change Applications were specifically conditioned upon:~~

~~a. the entry of this Master Order as a final, non-appealable order; and~~

~~b. a final, non-appealable order approving the Transfer Application for a quantity of at least 6,756.8 acre-feet of water per calendar year.~~

~~The Cities later withdrew such conditions, in the course of their extensive discussions with the Chief Engineer.~~

~~44.~~52. The Change Applications seek to make the following changes to the R9 Water Rights:

a. Change the use made of water under each of the R9 Water Rights from irrigation to municipal use.

b. Change the places of use for the R9 Water Rights, from only the R9 Ranch to:

i. ~~———~~the R9 Ranch;

~~i. the City of Hays, Kansas, and its immediate vicinity as well as related areas in the Northeast Quarter (NE/4) of Section 19 and the Northwest Quarter (NW/4) of Section 36, Township 13 South, Range 18 West, Ellis County, Kansas; and~~

ii. ~~———~~the City of Hays, Kansas, and its immediate vicinity as well as related areas in the Northeast Quarter (NE/4) of Section 19 and

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the Northwest Quarter (NW/4) of Section 36, Township 13 South, Range 18 West, Ellis County, Kansas; and

~~ii.~~iii. the City of Russell, Kansas, and its immediate vicinity.

c. Change the points of diversion for each of the R9 Water Rights as authorized in their respective certificates of appropriation and approved changes, if any, that predate this Master Order, and as set out in Table 1 attached as **Appendix B**. The approximate locations of the proposed municipal wells are shown on the map attached as **Exhibit 33** and are more specifically described in each of the Change Applications and the maps attached thereto.

~~45.~~53. The Change Applications originally were filed before K.A.R. 5-5-9 was amended by changes effective September 22, 2017. Accordingly, the Cities based the Change Applications on the 1994, pre-amended version of K.A.R. 5-5-9.

~~46.~~54. Given the timing of when the Change Applications originally were filed, the Chief Engineer finds that K.A.R. 5-5-9, as it existed in 1994 on the date when the Change Applications originally were filed, should be and is applied to the changes in use requested by the Cities. *See* **Appendix C**.

C. Review of the Change Applications

~~47.~~55. The Chief Engineer and DWR staff have carefully reviewed the original Change Applications and all of their amendments and attachments, the ~~Burns and McDonnell~~BMcD modeling report and the related modeling files discussed below, the documents in DWR's files for each of the R9 Water Rights, ~~and~~the public comments received at or related to the Public Meeting, and such other documents and sources of information normally consulted when considering similar change applications, all in light of the applicable statutory and regulatory requirements of K.S.A 82a-708b and K.A.R. 5-5-1 through K.A.R. 5-5-16.

a. Draft Proposed Master Order

~~48.~~56. In the course of such review, the Chief Engineer and DWR met with the Cities, their attorneys and engineers, and otherwise gave careful consideration to the merits of the Cities' requested changes. These discussions resulted in a draft, proposed Master Order and related draft Change Approvals, to better narrow the issues for the public's information and the Chief Engineer's consideration.

57. Such draft, proposed documents included the following key features:

- The proposed amount of water to be converted to municipal use, based on not increasing consumptive use, totaled 6,756.8 acre-feet.

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- The Cities' plans to consolidate the 56 existing irrigation wells on the R9 Ranch to 14 municipal wells.
- Water withdrawals under the R9 Water Rights would be limited by a TYRA Limitation of 48,000 acre-feet of water (an average of 4,800 acre-feet per year), based on the reasonable long-term yield of the R9 Ranch as determined from a series of model runs using the GMD5 Model. The long-term yield analysis was requested by the Chief Engineer and completed by BMcD for the Cities.
- Such TYRA Limitation could be relaxed in the future, based on improved science, and potentially could be removed entirely if the basin is opened to new appropriations or the restrictions of the Arkansas River IGUCA are relaxed.
- The initial Reasonable-Need Limitations for the Cities, i.e., the respective Limitations imposed on each City's municipal use of water under the R9 Water Rights, when combined with that City's use of water from all other municipal water rights, would be 5,670.23 acre-feet per year for Hays and 1,841.3 acre-feet per year for Russell, with the ability to increase the Reasonable-Need Limitations in the future based on documented, reasonable increased municipal need of a City.
- Various reductions and Limitations regarding the rates of diversion for many wells.
- Prescribed reporting requirements, including a monitoring plan.

~~49.~~58. DWR ~~also~~ provided the Change Applications, the ~~Burns and McDonnell~~BMcD modeling report and the related modeling files, and proposed drafts of this Master Order and the Change Approvals to GMD5 for its review under K.A.R. 5-25-1 through K.A.R. 5-25-21. These documents were ~~also were~~ made available to the public via DWR's website.

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b. Public Meeting and Comments

~~50.~~ Further, the Chief Engineer held ~~an~~the informational ~~public meeting~~Public Meeting in ~~Edwards~~Kiowa County on ~~**[insert date],**~~June 21, 2018, to explain the issues being considered regarding the Change Applications and to receive comments from the public. ~~The~~ In addition, to allow for a fuller record, the Chief

Engineer provided an extended public comment process and timeline and accepted public comments through ~~**[insert date]**~~.

59. ~~After such careful~~September 2018, which included the opportunity for consultants to review and ~~consideration,~~comment on one another's work. At the Public Meeting, oral public comments were received from the following: Richard Wenstrom, Kent Wetzel, Pat Wetzel, John Janssen, Pat Janssen, George Hetzel, and Kim Gamble.

60. Recommendations were received from GMD5 on August 29, 2018 and supplemented on September 14, 2018. In addition, GMD5 provided a PowerPoint presentation that summarized BGW's review of the Cities' groundwater modeling as well as BGW's August 30, 2018, in-line comments in response to the work of Water PACK's consultant, KBE.

61. Water PACK and its consultant, KBE, provided comments and analyses at the Public Meeting, and subsequently in writing. At the Public Meeting, Dr. Keller of KBE provided a pre-recorded audio presentation and an accompanying PowerPoint presentation entitled *Water Level Trends & Consumptive Use on the R9 Ranch.* Subsequently, Water PACK provided KBE's technical report, entitled *R9 Ranch Consumptive Use Analysis*, as corrected on November 12, 2017. In addition, Water PACK provided letters of comment dated July 10, 2018; July 25, 2018; and September 11, 2018. For the most part, these letters supported concerns articulated by Water PACK's consultant, KBE, which concerns are summarized below. KBE also provided its review of BMcD's modeling report dated August 21, 2018.

62. The Cities provided responses to comments and analyses by Water PACK and GMD5 and their respective consultants, on August 6, 2018, September 14, 2018, and September 18, 2018, as well as a revised Modeling Report dated September 25, 2018, and an e-mail exchange with the manager of GMD5 regarding their modeling.

63. In addition, written public comments were received from Jane Wenstrom, Jared Stegman, Barry Mayhew, William Burr, Lee Borck of Innovative Livestock Services, Inc., Quentin Hirsh, Leroy Wetzel, and Richard Wenstrom. Several of the public comments opposed allowing the Cities to take more water out of the basin than can be diverted without causing any present or future water level declines, or questioned whether DWR had done enough to ensure that the Cities' requested changes are reasonable. Other comments included the following questions, concerns, or requests:

- whether the Cities would be allowed to pump the wells in the southeast part of the R9 Ranch at their full authorized quantity year after year and whether this is what was modeled (DWR confirmed that the modeling assumed these

wells would be pumped at approximately 90% of their annual authorized quantity, as explained herein);

- whether water quality monitoring would be required (a feature that has been required and ordered herein as a result of this public comment and recommendation of GMD5);
- what level of depletion (to the local aquifer) the Chief Engineer ~~finds that the~~ would find acceptable;
- how model uncertainties would be addressed;
- whether the Cities' model was the appropriate tool for a decision of this scale;
- whether the lack of recharge from the Arkansas River was properly considered;
- concern that a transfer of 6,756.8 acre-feet causes, or might cause, declines that some people may consider excessive and that could lead to impairment complaints both for and against the Cities;
- request that the TYRA Limitation be allowed to be decreased based on observed water levels declining at a rate greater than anticipated; and
- challenged DWR's determination of consumptive use available for converting the R9 Water Rights from irrigation to municipal use based on K.A.R. 5-5-9(c) (1994 version) (note: DWR's use of alternative crops is based on K.A.R. 5-5-9(b) (1994 version)).

64. As a result of the received public comments, the Chief Engineer identifies and addresses further herein the following significant issues raised by the public, in addition to such other issues relevant to the Cities' Change Applications: whether the consumptive use determined by DWR is appropriate, whether groundwater levels have declined or are expected to decline at an excessive rate, whether the groundwater modeling completed by the Cities is sufficient for evaluating the Change Applications, and whether the Limitations proposed to be placed on such requested changes, including the TYRA Limitation, are reasonable.

65. To assist in his review of the public comment received, the Chief Engineer directed DWR staff to assess select data provided via the process and to analyze local data and model outputs. Documentation of this work is summarized in the DWR Review. More specifically, the document: (1) summarizes the spatial distribution of the water data level evaluated by KBE in its letter of August 21, 2018, (2) provides an independent review of the available water level measurements and water level trends on the R9 Ranch and within the adjacent area, (3) provides an independent assessment of modeled water levels on the R9 Ranch and within the adjacent area, both in the

historical simulation and two future simulations, and (4) compares modeled and measured water level data for the R9 Ranch as a whole, for three portions of the R9 Ranch (southwest, northeast, and southeast), and for two adjacent areas with nearby water rights to the south and northeast of the R9 Ranch.

66. The Chief Engineer carefully considered the public input received that was germane to the Chief Engineer's decisions regarding the Change Applications, specifically the decisions required by K.S.A. 82a-708b, i.e., whether the applicant has demonstrated that any 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.

67. Public comments were also received that are related to issues to be considered in the subsequent water transfer proceeding. These comments were reviewed and considered to the extent appropriate for consideration of the Change Applications, but not beyond this.

68. GMD5's recommendations of August 29, 2018, included: (1) that the TYRA Limitation should be ~~contingently~~a lower figure of 40,000 acre-feet, (2) that certain modeling issues should be corrected, (3) that any issued master order approving the Change Applications should allow for a future change to the TYRA Limitation, either greater or lesser than the amount initially imposed, and that a hearing on such should be required before any change is made, (4) that the "master order should be revised to include the current management program adopted by the District and approved ~~for the reasons and on the terms and conditions set out in this Master Order, which includes the various Change Approvals~~by the Chief Engineer," and (5) that the Cities' monitoring plan for the R9 Ranch should be modified to include water quality monitoring. In its supplemental recommendation of September 14, 2018, GMD5 recommended that the Chief Engineer use K.A.R. 5-5-9(c) (1994 version) to determine the new consumptive use for the Change Applications based on site-specific data.

~~51.~~69. GMD5's recommendations are discussed in the relevant subsections of these MIXED FINDINGS OF FACT AND CONCLUSIONS OF LAW and implemented in the ORDER section as appropriate, except the following recommendations are addressed here: (a) the Cities fixed the model errors cited by GMD5's consultant as noted in the Cities' revised model report dated September 24, 2018 and (b) the Cities have provided a revised monitoring plan with a water quality component, attached as ~~**Exhibits 1-32** that are incorporated herein~~**Exhibit 34**.

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II. Change in Beneficial Use

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~~52.~~70. ~~The~~After careful review of the documents and information referenced herein, the Chief Engineer finds that conversion of the R9 Water Rights from irrigation to municipal use under the terms and conditions set out in this Master Order is

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reasonable ~~and~~, will not impair existing rights, and relates to the same local source of supply as that to which the R9 Water Rights relate. *See* K.S.A. 82a-708b(a). Accordingly, the conversion of the R9 Water Rights from irrigation to municipal use should be contingently approved on the terms and conditions set out in this Master Order.

III. Quantities for Municipal Use (consumptive use determination)

A. Applicable Law

~~53.~~71. Because approving a change in the authorized beneficial use of a water right may, under K.A.R. 5-5-9 (1994 version) and its concept of consumptive use, effectively result in a reduction in the authorized quantity for the water right for its new use, the Chief Engineer must apply that regulation here in the course of contingently approving the changes in use requested by the Cities.

~~54.~~72. Changing the use made of water from irrigation use to municipal use may be approved if the change does not cause the net consumptive use from the local source of water supply for the new use to exceed the net consumptive use from the same local source of water supply by the original irrigation use. K.A.R. 5-5-9(a) (1994 version).

~~55.~~73. The maximum annual quantity of water allowed to be changed from irrigation to municipal use is the net irrigation requirement ("NIR") for the 50% chance rainfall for the county of origin, multiplied by the maximum acreage legally irrigated under the authority of the water right in any one calendar year during the perfection period. K.A.R. 5-5-9(a)(1) (1994 version).

~~56.~~74. The applicant, however, may attempt to demonstrate to the Chief Engineer a more accurate estimate of the historic net consumptive use than the net consumptive use calculated under the methodology set forth in K.A.R. 5-5-9(a)(1). K.A.R. 5-5-9(b) (1994 version).

~~57.~~75. The NIR for the 50% chance rainfall for Edwards County, Kansas, is 13.0 inches for corn and 20.9 inches for alfalfa.

A. Review and Discussion of Consumptive Use Determination

~~58.~~76. A review of the information in DWR files, as supplemented by information provided by the ~~Applicants~~Cities, shows that the R9 Ranch was principally an alfalfa operation during the perfection periods for the R9 Water Rights.

~~59.~~77. Accordingly, pursuant to K.A.R. 5-5-9(b) (1994 version) attached as Appendix C, and as set out in Table 1 attached as **Appendix B**, the NIR for alfalfa was used for the R9 Ranch irrigation circles that were planted to alfalfa during the perfection periods for each of the R9 Water Rights and, pursuant to K.A.R. 5-5-9(a) (1994 version),

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the NIR for corn was used for the remaining acreage of the R9 Ranch. Pursuant to K.A.R. 5-5-9(a)(4) (1994 version), however, no resulting quantity for a particular R9 Water Right was allowed to exceed the maximum certified annual quantity.

78. Using this procedure under K.A.R. 5-5-9 (1994 version), the approval of the Change Applications would permit the diversion of a total of up to 6,756.8 acre-feet of water per calendar year from all of the R9 Water Rights combined.

79. With respect to KBE's consumptive use analysis, Dr. Keller's presentation at the Public Meeting provided an overview of KBE's technical report, entitled *R9 Ranch Consumptive Use Analysis*. KBE's work cites K.A.R. 5-5-9(c) (1994 version) that allows for site-specific consumptive use determinations where the default determinative methods listed in the regulation appear to be unrealistic and could result in the impairment of other water rights. Water PACK commissioned KBE to complete a site-specific analysis. The KBE report details its methods and estimates of average consumptive use by alfalfa and corn for the period 1980–2009 using American Society of Civil Engineers' methods applied to climate conditions for the period and adjusted for the stress factor found from a METRIC ("Mapping EvapoTranspiration at high Resolution with Internalized Calibration") analysis of 1984 and 1985. In the end, KBE estimates a site-specific average consumptive use by corn to be 13.6 inches and by alfalfa to be 20.6 inches. These values are close to the values used by DWR.

80. To determine the appropriate amount of water to be transferred, KBE states the following on page 3 of its report, regarding their study methodology: "Because the effective rainfall is greater under post-transfer dryland/natural grassland conditions than under pre-transfer irrigated conditions (i.e. more rainfall is consumed by dryland/natural grasslands than irrigated land), the effective rainfall used in the net consumptive irrigation use calculation for transferable water should be equivalent to the consumptive use under dryland conditions." As applied, on the bottom of page 5, the report states: "In other words, we estimate the annual average effective precipitation under water transfer conditions on the R9 Ranch will be 21.1 inches, as opposed to the 15.4 inches for irrigated alfalfa and 12.2 inches for irrigated corn (Table 1)." On page 7, the report concludes: "These yield transferable quantities of 12.0 inches (1.00 ac-ft/ac) for alfalfa circles and 4.7 inches (0.40 ac-ft/ac) for corn circles. Accordingly, and based on the Chief Engineer's Office preliminary findings of 2,901 acres of irrigated alfalfa and 2,246.7 acres of irrigated corn water rights, the total transferable water from the R9 Ranch would be 3,790 ac-ft per year."

81. GMD5 initially found that DWR's application of K.A.R. 5-5-9 (1994 version) was done correctly. After reconsidering the matter, however, GMD5 recommended, without providing specific justification or method, that the Chief

Engineer rely on site-specific data per K.A.R. 5-5-9(c) (1994 version) to determine how much water should be allowed to be converted from irrigation use to municipal use.

82. In BGW's PowerPoint presentation entitled *Technical Assessment of City of Hays Water Transfer/R9 Ranch Development Scenarios and Commentary on WaterPACK Analysis*, BGW commented on KBE's consumptive use analysis which proposed reducing the transferable amount of water by post-transfer consumption on the R9 Ranch, stating that BGW had not reviewed the details but, as a general approach, such consideration of post-transfer water consumption maintains a hydrologic balance compared to baseline agricultural use.

83. The Cities provided a response to KBE's consumptive use analysis on August 8, 2018, with attached comments by BMcD, as well as in the Cities' letter of September 18, 2018. In the Cities' August 8 letter, they state that the use of the alternate consumptive use calculation under K.A.R 5-5-9(c) (1994 version) requires that the default method in the regulation produce a quantity of water available to change to a different type of beneficial use that both: (1) appears to be unrealistic and (2) possibly results in impairment of other water rights. Because there has been no showing of potential impairment, the Cities contend that the regulation should not be applied. Second, the Cities point out that calculating the amount of water available to change to a different type of beneficial use and then deducting the future use of the R9 Ranch as grassland is "not only unfair to the Cities on its face, it is also speculative, inadequately explained and documented, contradicts the longstanding approach required by Kansas law and adopted by DWR for every other water user, and violates the plain text of K.A.R. 5-5-9." The Cities further argue that the DWR regulations in place when the original Change Applications were submitted (and which regulations are found to apply in this Master Order) also required that the "consumptive use must be based on the original irrigation use made of water during the year of record, evaluated (as DWR always has) on a water-right-by-water-right basis." The Cities argue in their August 8 letter that consumptive use under both K.A.R. 5-5-9(a) and (c) (1994 version) looks to the actual net consumptive use during the perfection period, whereas KBE's analysis with its reduction is "based on an estimation of the dramatically greater consumptive use he [Keller] argues will exist under the post-transfer dryland/natural grassland conditions, which is unfair to the Cities."

84. BMcD notes that "after calculating evapotranspiration rates, KBE switches to an elementary daily soil balance model based on numerous assumptions to propose that an additional quantity should be subtracted from historical consumptive use of applied irrigation. KBE proposes consideration of a future increase in the effective precipitation under restored grassland conditions. In addition, KBE incorrectly compares changes to effective precipitation and subsequent aquifer recharge by

equating a theoretical daily soil-water balance budget for switchgrass to the calculated annual 50-percent probable effective precipitation under corn and alfalfa."

85. In the Cities' September 18 letter, they add that "Keller and the GMD ignore the fact that K.S.A. 82a-708b allows changes without losing priority of right. There is no evidence that the proposed changes would impair water rights that are senior to the water rights on the R9 Ranch—nor do Keller or the GMD even suggest that approving the Change Applications could potentially cause impairment. Moreover, direct impairment is very unlikely because the changes will result in fewer well locations, adequate well spacing, and reduced pumping rates."

A. Conclusions on Consumptive Use

86. The Chief Engineer finds that the consumptive use determined by DWR was done in conformity with applicable DWR regulations. DWR properly applied K.A.R. 5-5-9(b) (1994 version) at the request of the applicant Cities to consider the use of alternate crops such as alfalfa. Furthermore, no compelling evidence has been offered to substantiate concerns of impairment and therefore K.A.R. 5-5-9(c) (1994 version) is not applicable in this instance.

87. The TYRA Limitation of 48,000 acre-feet limits the long-term supply that can be taken from the R9 Ranch. The TYRA Limitation is over and above the reduction required by the consumptive use determination. Imposing the TYRA Limitation on the consumptive use determination allows the Cities to meet their future peak demands but limits the Cities to using only about 70% of the annual allowable diversion from the R9 Ranch, over the long-term.

88. Considering the reduced pumping rates, the distances between the Cities' wells and the wells of nearby water rights, the groundwater modeling results provided by the Cities, and the TYRA Limitation on diversions from the R9 Water Rights, the Chief Engineer finds, pursuant to K.S.A. 82a-708b(a)(2), that for each of the wells for which the Cities have applied to change from irrigation use to municipal use as requested in the Change Applications and explained herein, the Cities have demonstrated in each case that the proposed quantities for municipal use as requested in the Change Applications and explained herein are reasonable and will not impair existing rights.

~~60.~~89. The Chief Engineer finds that approval of the Change Applications, which will permit the diversion of a total of up to 6,756.8 acre-feet of water per calendar year from all of the R9 Water Rights combined, will not cause the net consumptive use from the local source of water supply for the new municipal use to exceed the net consumptive use from the same local source of water supply by the original irrigation use.

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~~61.~~90. The resulting total authorized quantity for municipal use for each R9 Water Right, after the changes contingently approved herein, must be the lesser of the net consumptive use or the maximum annual quantity authorized (i.e., certified, in the case of each of these R9 Water Rights) for irrigation use for each such R9 Water Right. K.A.R. 5-5-9(a)(4) (1994 version).

~~62.~~91. Accordingly, the Chief Engineer finds that because of the changes contingently approved herein, and subject to the Limitations and conditions provided herein, the total authorized quantities that may be diverted for municipal use for each R9 Water Right are the amounts listed in Table 1 attached as **Appendix B**, which listed amounts are the lesser of the net consumptive use or the maximum annual quantity authorized (certified) for irrigation use for each R9 Water Right. For all R9 Water Rights combined, this contingently authorized total quantity for municipal use is 6,756.8 acre-feet of water per calendar year (subject to the Limitations and conditions as further provided herein).

IV. Limitations on Quantities for Municipal Use

A. ~~Ten-Year Rolling Aggregate~~TYRA Limitation

~~A.~~a. Basis of TYRA Limitation

~~63.~~92. The Kansas Water Appropriation Act provides that 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 demonstrates to the Chief Engineer that any proposed change is reasonable and will not impair existing rights. K.S.A. 82a-708b.

~~64.~~93. Furthermore, the Kansas Water Appropriation Act provides the Chief Engineer with authority to control, conserve, regulate, allot, and aid in the distribution of the water resources of this state for the benefits and beneficial uses of all of its inhabitants in accordance with the rights of priority of appropriation. K.S.A. 82a-706.

~~65.~~94. The Chief Engineer finds that the aforementioned considerations and authority of K.S.A. 82a-706 and 82a-708b~~,~~ along with the unique aspects of the Project, including but not limited to (a) its being subject to the Water Transfer Act, (b) the need to make as clear as possible the expected nature of impacts into the long-term future, and (c) ~~Applicants'~~the Cities' request for a procedure to allow the reasonable quantity for municipal use to inflate over an indefinite time~~,~~ necessitate a realistic assessment of the long-term impacts of the Project on the R9 Ranch wellfield and the surrounding area and a finding that the long-term withdrawals for municipal use allowed pursuant to this Master Order are consistent with the quantity of water that reasonably can be

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diverted from the water resources on the R9 Ranch wellfield over the long-term without unreasonable effects to the area.

~~66.~~95. Thus the Chief Engineer finds that it is appropriate to allow the Cities to divert in any calendar year, or a series of calendar years, the full amount of 6,756.8 acre-feet of water for municipal use from all R9 Water Rights combined, as determined herein and consistent with the R9 Ranch's historic consumptive use, while imposing the TYRA Limitation, to wit: a Limitation on the quantity of water that can be diverted from the combined R9 Water Rights for municipal use during any rolling 10-year period, based on an estimate of the quantity that can be reasonably diverted from the water resources on the R9 Ranch wellfield over the long-term without unreasonable effects to the area.

~~67.~~96. To establish ~~this~~the TYRA Limitation, the Chief Engineer required the Cities to develop modeling work to form the basis of ~~the~~such Limitation and to assess the impact of this pumping of the R9 Water Rights on the surrounding area. ~~Based on the~~The Cities' model results explained below in Subsection IV.~~B., the Chief Engineer finds~~A.b. suggest that 48,000 acre-feet of water during any, each, and every ten consecutive calendar years (i.e., a ten-year rolling aggregate of 48,000 acre-feet, or an average of 4,800 acre-feet per calendar year) is a reasonable ~~maximum quantity for~~Limitation to impose on the long-term yield from all of the R9 Water Rights~~.~~ combined. In other words, the quantity diverted during a calendar year from all of the R9 Water Rights combined, plus the total of the quantities diverted from all of the R9 Water Rights combined during each of the 9 previous calendar years, should not exceed 48,000 acre-feet of water.

~~68.~~97. ~~If this~~The Cities' model results suggest that if this TYRA Limitation is applied on such a rolling-aggregate basis, then ~~based on the model results,~~ the overall mass-balance of water extracted versus water entering the area demonstrates that the effects on the area of pumping from the R9 Water Rights will not be unreasonable.

~~69. Accordingly, the Chief Engineer finds that an annual quantity of water from the combined R9 Water Rights of 6,756.8 acre-feet per calendar year, limited to 48,000 acre-feet of water during any, each, and every ten consecutive calendar years (the "Ten-Year Rolling Aggregate Limitation"), is the quantity that has been demonstrated to be reasonably diverted over the long-term from the R9 Water Rights, and thus the~~

~~Ten-Year Rolling Aggregate Limitation should be imposed on the combined R9 Water Rights.~~

~~70. The Ten-Year Rolling Aggregate Limitation is imposed for the exclusive benefit of the public as a whole and not for the benefit of any other water right, person, or entity. The Ten-Year Rolling Aggregate Limitation is not intended to benefit any other water right, person, or entity and does not confer any benefits or create any rights in any third party.~~

~~71. The Ten-Year Rolling Aggregate Limitation does not impose a Limitation on, and thus does not restrict, the quantity of water that may be diverted by the Cities from additional sources outside the current boundaries of the R9 Ranch, which sources might be developed in the future via acquisition and conversion of other water rights, applications for new water appropriation rights, or some form of augmentation.~~

~~72. The imposition of the Ten-Year Rolling Aggregate Limitation is based, in large part, on:~~

~~a. the fact that the Arkansas-Pickerel Subbasin of the Upper Arkansas River Basin is closed to new appropriations;~~

~~b. the underlying concerns and on the restrictions of the Arkansas River IGUCA Order issued by the Chief Engineer on September 29, 1986, as amended on March 6, 1987, and again on October 14, 2013; and~~

c. the Chief Engineer's review and consideration of the results of groundwater modeling discussed below in Subsection IV.B., which modeling represents the best science currently available, at a reasonable cost, to estimate the long-term water supply of the R9 Ranch and surrounding area. Based on DWR's participation in GMD5's robust model development process, including review by DWR's groundwater modeling expert, Steve Larson of S.S. Papadopulos and Associates, the Chief Engineer believes it is reasonable to rely on such modeling results to determine the Ten-Year Rolling Aggregate Limitation.

73. The Chief Engineer finds that changes in the aforementioned bases, as well as additional data collection, further refinement and/or calibration of the existing groundwater model discussed below in Subsection IV.B. (including upgrades to the existing model), or the creation of an entirely new model, could result in changes to the conclusions that form the basis for the Ten-Year Rolling Aggregate Limitation, in which case it may be appropriate to increase such Limitation or to remove it entirely. Accordingly, this Master Order sets out below in Subsection XII.A. the circumstances under which the Ten-Year Rolling Aggregate Limitation may be increased or removed.

74.1. The Cities contend that the Chief Engineer does not have the authority to impose the Ten-Year Rolling Aggregate Limitation. The Chief Engineer acknowledges but does not agree with the Cities' contention.

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~~B.~~b. Modeling Supporting the ~~Ten-Year Rolling Aggregate~~TYRA Limitation

~~75.~~98. ~~As found above in Subsection IV.A., the Chief Engineer's finding that the Ten-Year Rolling Aggregate Limitation should be imposed on the combined R9 Water Rights because it is a reasonable maximum quantity for the long-term yield from the R9 Water Rights, is based on the~~The following model results obtained by the Cities and confirmed by the Chief Engineer support the imposition of the TYRA Limitation, as discussed above.

~~a.~~*i. The GMD5 Model*

~~76.~~99. Quantifying and analyzing the effects of the 48,000 acre-feet of water figure (or 4,800 acre-feet of water per calendar year, on average), which figure the Chief Engineer has imposed as the ~~Ten-Year Rolling Aggregate~~TYRA Limitation, was accomplished by the Cities' modelers using a three-dimensional groundwater flow model developed by ~~Balleau Groundwater, Inc. (~~"BGW~~")~~ for GMD5. (the "GMD5 Model").

~~77.~~100. A detailed report describing the construction and calibration of the GMD5 ~~model~~Model can be found in the BGW report titled *Hydrologic Model of Big Bend Groundwater Management District No. 5*, dated June 2010 (the "BGW Report").

~~78.~~101. The Cities' modelers, ~~Burns & McDonnell~~BMcD, acquired the BGW Report and model files from DWR through a Kansas Open Records Act ~~("KORA")~~ request. The results of the ~~Burns & McDonnell~~BMcD modeling are discussed in their modeling report dated February 13, 2018, which report was submitted to the Chief Engineer that day. On or about February 16, 2018, the ~~Burns & McDonnell~~BMcD modeling report was posted on ~~KDA~~ DWR's website for this matter and the related groundwater modeling files were made available to interested parties. As is noted elsewhere, as a result of the public review process, a relatively minor error was found in the modeling work done by BMcD. BMcD fixed the error, made new model runs, and provided a revised model report dated September 24, 2018.

~~79.~~102. As shown in the GMD5 Model Grid below, the ~~GMD~~GMD5 Model area encompasses the ~~entire Groundwater Management District~~entirety of GMD5, a substantial area up-gradient of the ~~District~~district, and additional area down-gradient from the ~~District~~district.

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GMD5 Model Grid

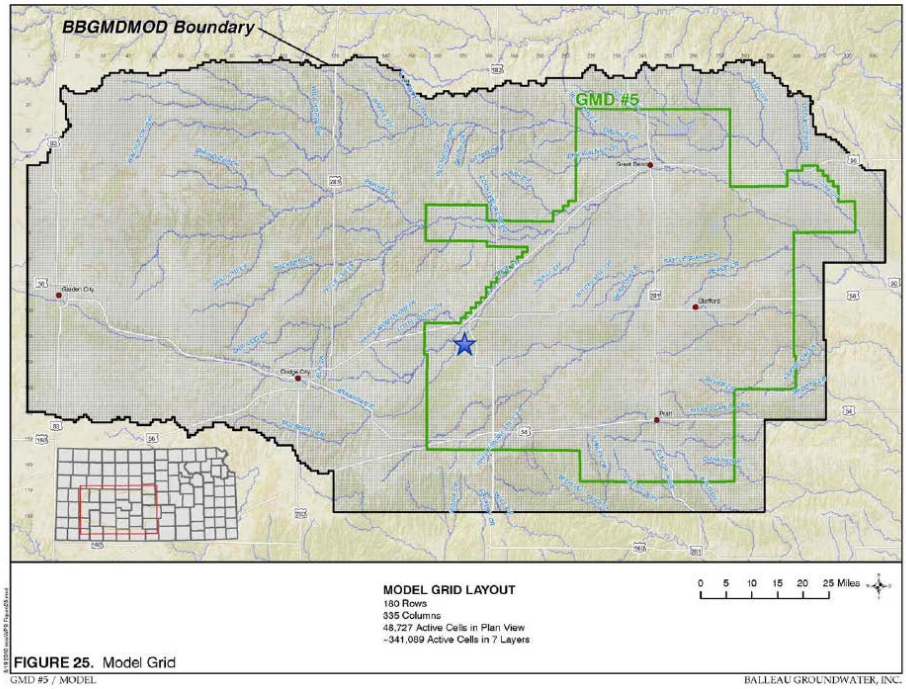

FIGURE 25. Model Grid

GMD #5 / MODEL BALLEAU GROUNDWATER, INC.

~~80.~~103. The GMD5 ~~model~~Model utilizes USGS' MODFLOW™2000 three-dimensional groundwater-flow modeling code. It includes the recharge, streamflow, pumping, and other pertinent data for the 68-year period from December 1939 through December 2007.

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~~81.~~104. ~~Burns & McDonnell~~BMcD imported the model construction, hydrogeological parameters, and well-pumping data contained in the GMD5 root MODFLOW files into Groundwater Vistas Version 6.0 ("GWV"), pre- and post-processing software, to run the GMD5 ~~model.~~Model. GWV provides a graphical user interface to streamline data entry and processing of model results.

~~82.~~105. ~~Burns & McDonnell~~BMcD completed an initial run to verify that the GMD5 ~~model~~Model was correctly imported and set up in GWV. ~~Burns & McDonnell~~ BMcD did not make any changes to the data or hydrogeological parameters of the GMD5 ~~model~~Model during the verification process.

~~83.~~106. Verification was accomplished by direct comparison of the mass-balance results, drawdown values, and water-level contours to the values from the BGW Report and the model output files obtained from DWR.

~~84.~~107. The water-level, drawdown, and mass-balance results calculated during the evaluation run correlated very well with the values reported for the base case in the BGW Report and output files.

~~85.~~108. To evaluate the long-term yield from the water resources on the R9 Ranch, the internal Hydrostratigraphic Units ("HSU") package in GWV was utilized for the computation of sub-regional water balances instead of the USGS ZONEBUDGET package.

~~86.~~109. These two packages perform the same function and provide equivalent results, essentially calculating the mass budget for a sub-region of the model.

~~87.~~110. The ~~model~~GMD5 Model was utilized to estimate the amount of water that flows into and out of the R9 Ranch HSU. Properties evaluated include recharge, evapotranspiration, well pumping, lateral groundwater flow into and out of the HSU from the surrounding aquifer, streamflow, and groundwater storage.

~~88.~~111. The ~~model~~GMD5 Model simulates a period of time from December 1939 through December 2007. As ~~Balleau~~BGW points out in the BGW Report, DWR has metered records of the volumes pumped from individual wells after 1990. Since those metered quantities for 1991 to 2007 provide the highest quality data, ~~Burns & McDonnell~~BMcD utilized this time period to complete the initial evaluation of the aquifer.

~~b.~~*ii. The Modeled Scenarios*

~~89.~~112. ~~Burns & McDonnell~~BMcD completed multiple model runs using an iterative process to determine a maximum average quantity of water that could be diverted without adverse effects on the aquifer. The pumped quantities from the proposed municipal wells were increased and decreased in successive model runs and the effects of the changes on the model output parameters and water levels were evaluated. In consultation with DWR, it was determined that the aquifer could sustain an average of 4,800 acre-feet per year with reasonable changes in water levels.

~~90.~~113. *"Short-Term Baseline Irrigation Scenario"*: ~~Burns & McDonnell~~BMcD first developed a "baseline" 1991–2007 scenario within GWV (the *"Short-Term Baseline Irrigation Scenario"*), which included all of the existing irrigation and irrigation return wells on the R9 Ranch as in the GMD5 ~~model~~Model. (Irrigation return wells were utilized in the GMD5 ~~model~~Model development to simulate the volume of water that

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infiltrates back into the aquifer during irrigation operations. See the BGW Report for further description and explanation of how the return flows were calculated.)

~~91.~~114. *"Short-Term Maximum Average Scenario"*: A second 1991–2007 scenario was developed in which those irrigation and irrigation return wells were then removed from the ~~model~~GMD5 Model and replaced with the proposed municipal wells (the *"Short-Term Maximum Average Scenario"*). Pumping in the portion of the R9 Ranch HSU outside the R9 Ranch remained unchanged. The municipal wells were pumped at 4,800 acre-feet of water on a 24-hour per day, 365.25-day per year basis for the 17-year period. According to the model, at the end of the 17-year period, pumping 4,800 acre-feet of water per calendar year resulted in approximately 0.~~5~~3 feet of additional drawdown at the R9 Ranch boundary.

~~92.~~115. To simulate the effects of long-term municipal pumping, ~~Burns & McDonnell~~BMcD used the data from the model runs for 1991–2007 to simulate a 51-year period.

~~93.~~116. The hydrologic data for the 17-year period from 1991 to 2007 was used for years 1 through 17, repeating the same data to simulate years 18 through 34, and repeating the data again for years 35 through 51.

~~94.~~117. All but two of the hydrogeologic parameters in the 51-year model remained unchanged.

a. The Arkansas River ~~gauge~~gage at the Dodge City and the former Kinsley ~~gauge~~gage reflect a significant decrease in flow after 2006. To recognize diminished flows in the Arkansas River, ~~Burns & McDonnell~~BMcD set the upstream flow contribution in the Arkansas River to zero after year 16 in the 51-year model.

b. In the GMD5 ~~model~~Model, the elevation of the Arkansas River declined linearly each year to account for erosion of the bottom of the channel. Since flow in the stream channel was removed, continued down-cutting of the riverbed elevation would not take place.

~~95.~~118. *"Long-Term Baseline Irrigation Scenario"*: As with the 17-year model, after setting up the 51-year model, ~~Burns & McDonnell~~BMcD ran the model with the irrigation and irrigation return wells on the R9 Ranch to arrive at the *"Long-Term Baseline Irrigation Scenario"*.

~~96.~~119. *"Long-Term Maximum Average Scenario"*: To demonstrate the long-term effects of withdrawing ~~the maximum Ten-Year Rolling Aggregate Limitation~~water available from the R9 Ranch under ~~this Master Order~~the TYRA Limitation, an additional 51-year scenario was developed by removing the irrigation and irrigation return wells on the R9 Ranch and inserting the proposed municipal wells (the *"Long-*

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Term Maximum Average Scenario"). Pumping in the portion of the R9 Ranch HSU outside the R9 Ranch remained unchanged. The model was then run pumping at 4,800 acre-feet of water, 24 hours per day on a 365.25-day per year basis for the 51-year period resulting in approximately ~~1.~~0.8 feet of additional drawdown at the R9 Ranch boundary after 51 years of pumping versus the *Long-Term Baseline Irrigation Scenario*.

~~97.~~120. *"Long-Term Projected Operations Scenario"*: To demonstrate the long-term effects of the Cities' projected actual withdrawal of water from the R9 Ranch, an additional 51-year scenario was developed by assigning municipal wells pumping rates equal to the projected operation of the R9 Ranch as a municipal water supply (the *"Long-Term Projected Operations Scenario"*). The wells were installed in phases and pumping was cycled among the wells operating at the actual projected rates. Production was stepped up over time based on the projected increase in municipal demand. Pumping was also increased in June, July, and August of each year to reflect increased demand during the hot summer months.

~~98.~~121. The *Long-Term Projected Operations Scenario* produced higher water levels over most of the R9 Ranch and the surrounding area than the *Long-Term Baseline Irrigation Scenario*. When compared to the *Long-Term Baseline Irrigation Scenario*, there was a water level rise of approximately ~~1.~~0.5 feet at the R9 Ranch boundary to the north and east after 51 years of pumping.

~~99.~~122. *"Long-Term Projected Operations with 2% Drought Scenario"*: At DWR's request, a 2% drought scenario (the *"Long-Term Projected Operations with 2% Drought Scenario"*) was inserted in the 51-year model. Data for the 1952 to 1957 historical period was extracted from the GMD5 ~~model~~Model and inserted as years 35 through 39 in the 51-year simulation. This placed the drought two-thirds of the way through the 51-year model and after water demand has increased.

~~100.~~123. ~~Burns & McDonnell~~BMcD ran the model using the assigned pumping rates equal to the projected operation of the R9 Ranch as a municipal water supply described above for the previous model run but with substantially increased pumping during the drought. After the drought, the pumping returned to the previous pattern.

~~101.~~124. The *Long-Term Projected Operations with 2% Drought Scenario* maximized the quantity pumped from the R9 Ranch during the drought without exceeding the ~~Ten-Year Rolling Aggregate~~TYRA Limitation.

~~102.~~125. *"Long-Term Baseline Irrigation with 2% Drought Scenario"*: To evaluate the long-term effects of municipal pumping on the R9 Ranch in the event of a 2% drought, ~~Burns & McDonnell~~BMcD developed an additional long-term baseline

irrigation scenario adjusted for the recharge parameters related to the drought sequence (the *"Long-Term Baseline Irrigation with 2% Drought Scenario"*).

~~103.~~126. The *Long-Term Projected Operations 2% Drought Scenario* resulted in higher water levels over most of the R9 Ranch and the surrounding area versus the *Long-Term Baseline Irrigation with 2% Drought Scenario*. When the *Long-Term Projected Operations with 2% Drought Scenario* was compared to the *Long-Term Baseline Irrigation with 2% Drought Scenario*, there was a water level rise of approximately 0.~~54~~ feet at the R9 Ranch boundary to the north and east after 51 years of pumping.

c. ~~Based on the model results~~Review and ~~as found above in Subsection IV.A.,~~Discussion of the TYRA Limitation

127. The quantity of the TYRA Limitation was the subject of considerable public comment at the Public Meeting and thereafter.

128. It should be noted at the outset that the Cities contend that the Chief Engineer does not have the authority to impose the TYRA Limitation. The Chief Engineer acknowledges but does not agree with the Cities' contention.

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129. ~~finds that the Ten-Year Rolling Aggregate Limitation~~GMD5 correctly acknowledged that DWR does not routinely impose Limitations of the type or magnitude of the TYRA Limitation on orders approving change applications.

130. GMD5 recommended lowering the TYRA Limitation to 40,000 acre-feet, on the grounds that (1) an average of 4,000 acre-feet per calendar year is the average pumping from the R9 Ranch in the baseline (historic) scenario, and (2) while an average of 4,800 acre-feet per calendar year is near equilibrium, GMD5's consultant believed that a ~~reasonable maximum quantity~~ more realistic equilibrium, and one that would have no effect in the basin, would be closer to an average of 4,000 acre-feet per calendar year.

131. Water PACK and its consultant expressed concern that the Cities' modeling work understates the water level declines near the R9 Ranch. One public comment asked what level of depletion to the aquifer would be allowed by the Chief Engineer. There were significant comments on the sufficiency of the modeling work done by the Cities as a basis for the TYRA Limitation. Water PACK and others opined that the TYRA Limitation should be based on an amount of water that could be diverted from the R9 Ranch without causing any present or future water level declines. These opinions may be based on the incorrect assumption that the Chief Engineer proposed the TYRA Limitation to prohibit all present or future declines.

132. Because of the unique nature of the Cities' Change Applications, the Chief Engineer had required the Cities to use the robust GMD5 model to determine the long-term yield from the R9 Water Rights if changed from irrigation to municipal use.

133. DWR was consulted during BMcD's adaptation of the GMD5 Model described in the revised Modeling Report dated September 25, 2018, and DWR's technical staff reviewed and commented on the modeling work as it was being developed.

134. After receiving public comment, DWR made an independent review of the model performance and water level changes on the R9 Ranch and immediate vicinity, including comparing historical data with the model results.

135. KBE agreed that the GMD5 Model could be an appropriate tool to evaluate regional water-management actions, provided that certain updates and calibrations are made.

136. The Chief Engineer finds that no such updates or calibrations are necessary to rely on the GMD5 Model for the purposes herein. The Chief Engineer understands that groundwater modeling is not a perfect science, but as discussed in detail below, the Chief Engineer has confidence in the modeling results based on the existing characteristics of the GMD5 Model. The GMD5 Model is the best tool available to evaluate the likely effect that approving the Change Applications will have on the area's water resources.

137. The Cities are entitled to make reasonable beneficial use of the R9 Water Rights. The GMD5 Model shows that the Cities' intended usage of the R9 Water Rights will cause the water levels of the R9 Ranch to continue to decline at varying but reasonable rates, while the neighboring water-right owners to the R9 Ranch will continue to deplete the aquifer as well but without being subject to such unique Limitations as the TYRA Limitation imposed on the Cities.

138. These arguments and the related evidence are further reviewed and discussed below.

i. Have groundwater levels declined or are they expected to decline at an excessive rate?

139. With respect to groundwater level trends, Dr. Keller's PowerPoint presentation at the public meeting showed trends at 10 monitoring wells in the general area from the Kansas Geological Survey's Wizard water level data set over the period 1995–2016. He argued that rates of water level decline shown warrant extra attention and should be considered in the determination of the amount that could be changed to municipal use and transferred out of the basin. Pertinent data are the two wells on the

R9 Ranch (well #s 4 and 5) and nearby well #3, approximately one mile south of the southeast boundary of the R9 Ranch. His examination of the hydrographs on the R9 Ranch show an average decline rate of approximately 0.15 ft/year and well #3 south of the R9 Ranch declining at approximately 0.50 ft/year over the period noted. Dr. Keller also created a spatial analysis from the aforementioned Wizard water level data set for the period 2001–2016, determining rates of decline of approximately 0.33 ft/year on the north side of the R9 Ranch, up to 0.67 ft/year on the southeast part of the R9 Ranch. Dr. Keller reported a mean decline rate on the R9 Ranch of 0.53 ft/year for the 2001-2016 period.

140. In an August 6, 2018 letter by BMcD, the Cities provided a response to KBE's June 21, 2018 presentation on groundwater level trends at the Public Meeting. BMcD states, "we evaluated the information presented using publicly available data from the Kansas State Weather Data Library, Office of the State Climatologist, the U.S. Drought Monitor, and the Kansas Geological Survey Water Well Level Database. In addition, we reviewed data from 15 water-level monitoring wells installed on the R9 Ranch to evaluate whether KBE's conclusion that water levels are declining is consistent with observed water levels on and near the R9 Ranch." BMcD concluded that KBE's analysis is flawed in the following ways: (1) only two of the ten wells KBE analyzed are actually on the R9 Ranch; the remaining analyzed wells range from 1.25 miles away to 4.5 miles from the R9 Ranch boundary; (2) additional data was publicly available and not used; and (3) the period selected, 1995–2016, illustrates "a skewed and unrealistically negative picture" of water level trends by starting with a wet period and ending with a dry period. BMcD provided additional information showing how water levels fluctuate with precipitation on three long-term wells on the R9 Ranch and in other wells in the area. The letter also provided a summary of 2014–18 data collected by the Cities from the monitoring well network established on the R9 Ranch. BMcD concludes: "Each of the hydrographs presented above for sites on the R9 Ranch clearly fluctuate with precipitation and provide no evidence of a declining trend as KBE incorrectly concludes. In addition, the above results are consistent with monitoring wells installed across the R9 Ranch, which all have water levels that are stable or in slight incline over the past several years."

141. DWR independently examined water levels on the R9 Ranch and in the immediate vicinity using historical observations, the water levels incorporated in the historical groundwater model simulations, and the GMD5 Model's future simulated water levels. DWR found good correlation between the trends in observed water levels and modeled trends in the historical simulations (see Figures 3–6 of the DWR Staff Review), which provided confidence in the modeling.

142. In examining the model future simulations, DWR determined the average rates for groundwater declines on the R9 Ranch and vicinity, for both the base case and the 4,800 acre-feet per year future (see Table 2 of the DWR Staff Review, and Figures 9, 10, 13, and 14 therein), with the values for the base run and 4,800 acre-feet per year simulations being nearly identical. Total 51-year declines and rates of declines (in parentheses) for the 4,800 acre-feet per year simulation for the R9 Ranch were: R9 Ranch overall, 5.2 feet (0.10 feet/year); southwest R9 Ranch, 3.0 feet (0.06 feet/year); northeast R9 Ranch, 5.4 feet (0.11 ft/year); southeast R9 Ranch, 10.2 feet (0.20 ft/year). Immediately south of the R9 Ranch, the 51-year decline was 11.6 feet (0.23 feet/year) and just northwest of the R9 Ranch the 51-year decline was 1.6 feet (0.03 feet/year).

143. As is noted by BMcD's work and others, water levels on the R9 Ranch and in the vicinity do fluctuate over periods of wet and dry cycles as noted in the data and do exhibit a gradual downward trend.

144. The Chief Engineer finds that these trends, however, do not undermine confidence in the use of the GMD5 Model to simulate the effects of the Cities' planned operation of the wells on the Ranch, and that the low to moderate rates of water level decline evidenced in the record and anticipated in the future are not inconsistent with the long-term yields determined for the R9 Ranch by BMcD's modeling analysis and are acceptable for purposes of determining the Limitations discussed in this Section IV.

ii. Is the groundwater modeling completed by the Cities sufficient for evaluating the proposed changes?

145. GMD5 provided a PowerPoint presentation entitled *Technical Assessment of City of Hays Water Transfer/R9 Ranch Development Scenarios and Commentary on Water PACK Analysis*, prepared by its consultant, BGW. BGW's PowerPoint is a summary of their review of the modeling work done by BMcD on behalf of the Cities. With respect to the Cities' modeling, BGW identified an error in the model's stream routing but commented that the effect of the error might not be significant. While BGW stated that the Cities' modeling demonstrated little effect on nearby wells from the change from irrigation to municipal use under the scenarios presented, it believed the error reported above should be fixed and a drought scenario with higher pumping by area irrigators along with the Cities' increased use is needed to confirm this finding, again acknowledging that the differences might not be significant. With respect to BMcD's assessment of the long-term available supply with reasonable water level change, BGW believed 4,400 acre-feet/year is nearer the point of no declines.

146. As noted above, BGW identified a technical error in BMcD's modeling, specifically the operation of the Streamflow Routing Package, which was not correctly

routing flow from cell to cell along the river flow paths. BGW also noted that simulated river stages had been adjusted. BMcD had modified streambed elevation along the Arkansas River to halt streambed downcutting beyond the first 17-year cycle as a consequence of low projected flows. BMcD corrected errors in both the routing and their adjustment of streambed elevations, and provided a revised model report dated September 24, 2018, along with revised model runs. According to the report, "The corrected model runs result in somewhat more water available to the Cities and further support the conservative approach taken by BMcD in the original model report. Nevertheless, the results of the corrected model runs do not change BMcD's overall conclusions contained the original model report. The water level changes and model mass balance from the corrected model runs support the conclusion that 4,800 acre-feet per year is a sustainable pumping rate for the R9 Ranch."

147. KBE provided their review of BMcD's modeling report in a letter of August 21, 2018, expressing concerns with the modeling approach, results, and reporting. The introduction states: "We have not attempted to run the hydrogeological model…nor have we quantified the potential impact on model results and conclusions resulting from the concerns." Further, the letter expresses "confidence in the BGW GMD#5 model as an appropriate tool…to evaluate regional water-management actions" and notes that such model could be "a good basis for modeling localized actions…provided it is updated and calibrated with measured data from the vicinity of the potentially impacted area rather than relying on the model-wide assumptions and calculations." KBE lists five concerns with the BMcD modeling approach and assumptions. In addition, KBE provided a list of BMcD modeling results and reporting concerns. GMD5 provided BGW's in-line comments, dated August 27, 2018, on the August 21, 2018 KBE letter. Finally, on behalf of the Cities, BMcD provided a September 13, 2018 letter responding to both KBE's and BGW's comments. Key concerns and responses are summarized below along with pertinent DWR findings.

148. First, KBE stated that the historical model simulation should have been updated and recalibrated to simulate conditions to the present to provide a more appropriate starting point for future scenarios instead of beginning with previous (1991) conditions. KBE cited its compilation of water level data indicating area water levels were, on average, 8 feet lower than the 1991 condition, and that current water levels are generally lower than the model says they will be in 2042, which is the end of the future baseline simulation. BGW said that using a different starting point for the analysis might not make much difference in the results, which examines the differences in two simulations, and that differences in projections and actual water levels can be affected by many factors. BMcD concurred with both points and cited its own water level analysis showing that water levels on the R9 Ranch varied from year to year but were

stable over the long term. DWR reviewed the water level data compiled in KBE's Table 1 and found most of the data used is from outside of the principal area of concern.

149. Second, to better capture climate variability in light of what it asserts as "climate change and the breakdown in stationarity," KBE suggested that: (1) a longer historical climate record extended to the present should be used to develop future scenarios rather than repeating 1991–2007 three times, (2) additional scenarios should have been developed with other techniques, and (3) BMcD's drought scenario is insufficient to capture long-term climate variability. BGW commented that BMcD's 51-year simulations are longer than the 30-year record that climate scientists regard as normal but suggested an improved drought simulation should be considered as well as additional model runs to determine if climate trends would affect the results. BMcD stated their view that climate change modeling is speculative and beyond the scope of their evaluation, that adding years to the climate record would not be expected to change the results, and that their evaluation used conservative assumptions, the modeled period being 5% drier than the 30-year norm, making the simulations reasonable and sufficiently conservative for the evaluation of future conditions.

150. Third, KBE stated that the Arkansas River should be treated as having no flow for all years and scenarios, not just after year 16 of the simulation. BGW agreed that BMcD's simulation overestimates streamflows for the first 16 years, but notes that had BMcD used historical flow records, the simulation would result in more evapotranspiration capture and additional depletion to the local aquifer near the stream on the order of a couple of feet or less. BMcD stated that this would have limited effect on water levels on the R9 Ranch and was not likely to change results significantly when comparing two model runs based on the same assumptions.

151. Fourth, KBE criticized the Cities' modeling assumption that recharge to the aquifer from precipitation is the same for the municipal pumping scenarios as the irrigation scenarios. KBE asserts that recharge under the municipal pumping scenarios "could be as much as 3,000 acre-feet/year less than under irrigation conditions" because "more of the precipitation will be consumed by the non-irrigated vegetation growing on the formerly irrigated fields." BGW supports considering "post-transfer consumption of precipitation at the R9 Ranch" as a potential new stress on the hydrologic system but stated "if the post-transfer consumption of precipitation is compared to unmanaged vegetation that existed prior to irrigation, then the change in the hydrologic balance with the transfer may be less." BMcD stated that "KBE did not provide sufficient documentation of the methodology used in their calculations to provide significant evidence supporting their conclusions" and noted that the long-term model runs were based on repeats of 1991–2007 hydrology with precipitation averaging approximately five percent less than normal.

152. Fifth, KBE states return flow calculations of the modeling should be validated for the specific conditions on the R9 Ranch and updated to current conditions, citing its consumptive use analysis for the R9 Ranch finding crop evapotranspiration to be 72% of optimal for the R9 Ranch, which compares favorably, but is lower than the model-wide adjustment of 80% assumed by BGW in the GMD5 Model. BGW suggested BMcD can resolve the question with model simulations that investigate the sensitivity of their results to variations in return flow. BMcD stated it is unlikely that an eight percent difference in return flows will significantly influence water levels on the R9 Ranch, that the GMD5 Model is the accepted best tool available for managing and evaluating the aquifer, and that its use is a reasonable approach. Figures 3–6 of the DWR Staff Review evidence that the GMD5 Model is performing well at matching water level trends on the R9 Ranch.

153. The remainder of KBE's August 21, 2018 letter is dedicated to a series of "results and reporting" concerns, again with BGW responding via its in-line comments of August 27, 2018, and BMcD providing its responses on September 13, 2018. Most significant are the following:

a. KBE says BMcD should compile model outputs showing water level changes on the R9 Ranch over the entire simulation period rather than just showing the differences between the irrigation and municipal use model runs at the ends of those simulations. BGW cited one example of such it provided in its PowerPoint for GMD5 for a point near the southern boundary of the R9 Ranch (in an area of highest declines) with declines of 15–20 feet over the 51-year simulation. BMcD reported that simulated long-term declines over the R9 Ranch average approximately 4 feet and provided long-term hydrographs at three monitoring locations on the R9 Ranch showing these declines. Results of DWR's review summarized above in Subsection IV.A.c.i. show projected 51-year water level declines averaging 5.2 feet for the R9 Ranch overall and ranging from 1.6 to 11.6 feet for specific portions of the R9 Ranch analyzed.

b. Similarly, KBE opined that BMcD should provide a discussion on the cumulative decrease in storage under the future simulations. BMcD points to its table summarizing the water budget for the various model runs to provide estimates of change in storage.

c. KBE asserts that in BMcD's model simulation of municipal use, the 2% drought condition simulation should also be applied to the 4,800 acre-foot per year maximum average municipal pumping scenario. BMcD responded that such a scenario is unreasonable because it does not simulate what the Cities actually would do in a drought situation. The 4,800 acre-foot per year maximum

average allows for greater pumping in drought years as long as the running 10-year total does not exceed 48,000 acre-feet.

d. KBE's final comments address the interpretation of BMcD's model report Figure 4 showing changes in water levels in comparison to pumping rates 1991–2007. KBE asserts that if the figure was expanded to show water level changes over the future simulation period it would be "incorrect to conclude 4,800 acre-feet of municipal pumping per year is sustainable". BGW noted that "determining what is sustainable relates to the hydrologic effects from that pumping that are deemed acceptable by area water users and administrators". BMcD responded that the issues of representing water level changes has been discussed earlier in KBE's comments.

154. While KBE, and to a lesser extend BGW, provided specific questions and concerns with BMcD's modeling approach, assumptions, and reporting discussed above, KBE noted qualified confidence in the GMD5 Model as an appropriate tool to evaluate regional water-management actions. BGW constructed the GMD5 Model and DWR provided peer review to BGW during the model's development.

155. Neither KBE nor BGW produced alternate model runs to substantiate their claims that the alternate methods they proposed would result in a significantly different value for the long-term yield of the R9 Ranch or that the impacts of the Project on the R9 Ranch or in the vicinity would be substantially different.

156. While the data set is limited, DWR found good correlation between observed and modeled water levels in the immediate vicinity, especially in groundwater level trends.

157. KBE asserts that the post-transfer condition would see less recharge from precipitation because of increased water usage by vegetation on the R9 Ranch. The Chief Engineer finds, however, that the analysis presented is insufficient to reasonably conclude the magnitude of potential reductions to recharge, the effect on the long-term yield, or to demonstrate that such reduced recharge would significantly affect pumping outside the R9 Ranch.

158. After careful review of the modeling work, the public concerns expressed, and the responses by the Cities, the Chief Engineer finds that the GMD5 Model is the best tool available to evaluate the Change Applications and the likely effect that approving them would have on the area's water resources, and that the revised modeling work done by the Cities is sufficient to determine the long-term yield of the R9 Ranch that serves as a basis for the TYRA Limitation that the Chief Engineer imposes herein.

d. Conclusions on the TYRA Limitation

159. As stated above, because of the unique nature of the Change Approvals, the Chief Engineer required the Cities to use the GMD5 Model to determine the long-term yield of the R9 Ranch (defined as the quantity of water that can be taken from the aquifer underlying the R9 Ranch over the long-term without unreasonably affecting the area), with the intent of constraining the Cities' long-term use to this amount. BMcD performed the modeling analysis on behalf of the Cities and found the long-term yield to average 4,800 acre-feet per year. This Master Order implements the long-term yield as the TYRA Limitation of 48,000 acre-feet to allow the Cities to respond to varying annual demands. The Cities are authorized to pump up to their total authorized quantity—6,756.8 acre-feet—in any given year but are limited to 48,000 acre-feet in any ten-year period.

160. As noted above, GMD5 recommended setting the TYRA Limitation to 40,000 acre-feet per 10 years based on historic average use. Water PACK and others have recommended tying the TYRA Limitation to a similar value based on KBE's consumptive use analysis or to the amount of water that can be taken from the R9 Ranch on a sustainable basis, defined by Water PACK as "the maximum amount of water that…does not contribute to present and future lowering of the water table in and around the R9 Ranch."

161. DWR, however, routinely approves changes to water rights in the Ogallala Aquifer and elsewhere that are not "sustainable" by Water PACK's above definition. Per the Kansas Water Appropriation Act, water right owners have the right to change their water rights if the change is reasonable, does not impair, and relates to the same local source of supply. *See* K.S.A. 82a-708b(a). The Chief Engineer finds, therefore, that the Cities' Change Applications, like any other change application, cannot be constrained under state law to recent historic use or the sustainable yield, either as defined by Water PACK or DWR regulations.

162. While the Cities' modeling of their proposed operations shows that area water levels will continue to decline at varying but reasonable rates as noted above, like their neighbors who are also depleting the local aquifer, the Cities are entitled to make reasonable beneficial use of their R9 Water Rights.

163. While there is a general concern about the rates of decline in the region, the Chief Engineer's decision must be based on the specific case of the R9 Ranch and its immediate vicinity. The Chief Engineer finds that the modeling supports the Cities' determination of long-term yield of 48,000 acre-feet per every 10 years because the model reasonably represents the groundwater system of the R9 Ranch and immediate vicinity with its distribution and spacing of the wells for the R9 Water Rights and for other nearby water rights, the expected recharge, the northeasterly gradient of the

groundwater table, the capture of flows from the southwest, and the lack of water rights to the northeast, all of which demonstrate that use on the R9 Ranch at this level will have limited negative effects on the nearest neighboring wells. Further, the Chief Engineer finds that the Cities' modeling of their operations constrained by such long-term yield sufficiently demonstrates that the Cities' proposed operations will not increase the rate of water level decline from the status quo and therefore will not unreasonably interfere with neighboring water rights.

~~104.~~164. Accordingly, the Chief Engineer finds that the TYRA Limitation, i.e., 48,000 acre-feet of water during any, each, and every ten consecutive calendar years, is a reasonable Limitation to impose on the long-term yield from all of the R9 Water Rights combined. An annual quantity of water from the combined R9 Water Rights of 6,756.8 acre-feet per calendar year, limited to 48,000 acre-feet of water during any, each, and every ten consecutive calendar years, is the demonstrated quantity that may be reasonably diverted over the long-term from the R9 Water Rights. If this quantity is applied on a rolling-aggregate basis, then based on the model results, the overall mass-balance of water extracted versus water entering the area demonstrates that the effects on the area of pumping from the R9 Water Rights will not be unreasonable. Accordingly, the TYRA Limitation should be imposed on the combined R9 Water Rights.

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165. The TYRA Limitation should be imposed for the exclusive benefit of the public as a whole and not for the benefit of any other water right, person, or entity. The TYRA Limitation is not intended to benefit any other water right, person, or entity and does not confer any benefits or create any rights in any third party.

166. The TYRA Limitation should not impose a Limitation on, and thus should not restrict, the quantity of water that may be diverted by the Cities from additional sources outside the current boundaries of the R9 Ranch, which sources might be developed in the future via acquisition and conversion of other water rights, applications for new water appropriation rights, or some form of augmentation.

167. The imposition of the TYRA Limitation is based, in primary part, on the Chief Engineer's review and consideration of the results of groundwater modeling discussed above in Subsection IV.A.b. Such modeling represents the best science currently available, at a reasonable cost, to estimate the long-term water supply of the R9 Ranch and surrounding area. Based on DWR's participation in GMD5's robust model-development process, including review by DWR's groundwater modeling expert, Steve Larson of S.S. Papadopulos and Associates, the Chief Engineer believes it is reasonable to rely on such modeling results to determine and impose the TYRA Limitation.

168. Additional, although secondary, bases for the TYRA Limitation are (1) the fact that the Arkansas-Pickerel Subbasin of the Upper Arkansas River Basin is closed to new appropriations, and (2) the underlying concerns and the restrictions of the Arkansas River IGUCA Order issued by the Chief Engineer on September 29, 1986, as amended on March 6, 1987, and again on October 14, 2013. Accordingly, the previous, draft proposed Master Order provided that if either of these additional bases were to be materially changed, then the TYRA Limitation would be automatically removed. GMD5, however, objected to any provisions that would automatically cause the TYRA Limitation to lapse, without any input from GMD5. The Chief Engineer finds GMD5's concern valid. Given the prominence of the TYRA Limitation within this Master Order, the unlikelihood that either of such additional bases will be materially changed in the future (and even if they were, the likelihood that the resulting impact on the long-term water supply of the R9 Ranch would be small), the Chief Engineer has declined to include in this Master Order any provision that would automatically cause the TYRA Limitation to be removed.

169. The Chief Engineer finds that additional data collection, further refinement and/or calibration of the existing GMD5 Model discussed above in Subsection IV.A.b. (including upgrades to such model), or the creation of an entirely new model, could result in changes to the conclusions that form the primary basis for the TYRA Limitation, in which case it may be appropriate to increase the TYRA Limitation. For example, the long-term yield determined herein assumes an upstream flow contribution in the Arkansas River of zero after year 16 in the 51-year model. Additional data collection could demonstrate that this condition has changed and show that consistent flow upstream of the R9 Ranch is occurring and is likely to continue, such that the long-term yield has increased. Accordingly, this Master Order sets out below in Subsection XIII.A. the circumstances under which the TYRA Limitation may be increased.

170. GMD5 recommended that any master order approving the Change Applications should allow for a future change to the TYRA Limitation, either greater or lesser than the amount initially imposed, and that a public hearing on such should be required before any change is made. Although the Chief Engineer agrees that a public hearing should be required before any such increase (see Subsection XIII.A. below), the Chief Engineer does not agree that the TYRA Limitation should be subject to decrease, even if future conditions result in changes to the modeling that formed the primary basis for the TYRA Limitation. Like any other applicant for changes to water rights, the Cities are entitled to a firm determination now, based on the best science currently available, of the most limiting way in which the imposed Limitations will affect their R9 Water Rights. This is necessary to allow for reasonable planning, and it is even more appropriate given the significant investment that the Cities intend regarding the Project.

~~C.~~B. Reasonable-Need Limitations

~~105.~~171. The Project will provide a long-term supply of water to the Cities and to other communities in the region; the Project is expected to have a design life of at least 50 years and to be productive even longer.

~~106.~~172. The Kansas Water Appropriation Act limits appropriation rights to the reasonable needs of appropriators. K.S.A. 82a-707(e). An applicable DWR regulation requires that the approval for a change in the use made of water shall be subject to a Limitation to that quantity that is reasonable for the proposed new use. *See* K.A.R. 5-5-9(a)(6) (1994 version).

~~107.~~173. Accordingly, in making the contingent approvals provided herein, the Chief Engineer must impose a Reasonable-Need Limitation on each City's use of water from all municipal water rights for which the City is the place of use, to an amount that represents the total reasonable municipal needs of that City. This means that a City's municipal use of water from the total authorized quantity for the R9 Water Rights as determined and found above by the Chief Engineer in Section III., when such use is combined with that City's use of water from all other municipal water rights for which the City is the place of use, must be an amount that is reasonable for municipal use by that City ~~(the respective "Reasonable-Need Limitations").~~

~~108.~~174. DWR's traditional method of determining the reasonable needs of municipal users, based on a 20 to 40 year timeframe, is appropriate for most growing municipal users, principally because most users are close to sufficient alternative sources to address their short-, medium-, and long-term needs.

~~109.~~175. Unlike most other Kansas cities, the Cities must look far afield to find reliable water sources.

~~110.~~176. The Cities state that they have considered numerous alternative sources, including Wilson Reservoir and the Smoky Hill River in eastern Russell County. The Cities assert that extensive hydrology and engineering studies have shown that these alternatives are unworkable or too expensive.

~~111.~~177. The Cities further assert that financing for the Project is likely to require amortization over the entire design life of the infrastructure, and that as a practical matter, the Cities cannot afford to build a pipeline from Edwards County if they must seek change-application approval, in stages, for increasing quantities of water for municipal use only as those quantities prove to be needed by the Cities. The Cities further assert that they cannot risk the multiple transfer proceedings that would be required for such incremental change-application approvals. The Cities believe that it is unlikely that they can obtain long-term financing for the Project if the full sustainable reasonable quantity of water for municipal use that is available from the R9

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Ranch is not approved with an objective method for reasonable increases as municipal water needs increase.

~~112.~~178. Based on the above assertions and concerns of the Cities, which the Chief Engineer finds are reasonable, and having determined that no waivers of applicable regulations are required, the Chief Engineer finds that DWR's traditional method to determine the "reasonable needs" of municipal users is not appropriate in this case. Thus a longer planning horizon is a practical necessity in this case and is consistent with the overall purposes of Kansas water law and its underlying policies, ~~so~~as long as the longer planning horizon does not permit the Cities to use water in excess of their reasonable municipal needs. *See* K.A.R. 5-5-9(a)(6) (1994 version).

~~113.~~179. For these reasons and others, the Cities have requested contingent approval of the Change Applications, with objective standards to establish the reasonable quantities for municipal use for each of the Cities into the future, based on actual and projected population changes, the reasonable needs of additional users, and other measurable indices that allow approved quantities to increase as needs and demand change.

~~114.~~180. More specifically, for purposes of determining the reasonable quantities for municipal use for each of the Cities into the future, the Cities have requested the use of the method outlined below in Subsection ~~XII~~XIII.B.b. (titled "*Method to Establish Reasonable-Need ~~-~~Limitations*~~"~~)) of this Master Order.

~~115.~~181. Because of the Chief Engineer's findings in this Subsection IV.~~C~~B. and because the Cities have purchased the R9 Water Rights (which are certified water appropriation rights) and seek to change them from irrigation to municipal use, the Chief Engineer finds that the Cities' proposed method to determine the Reasonable-Need Limitations is acceptable for use in this particular situation and should be approved.

~~116.~~182. The Chief Engineer finds that, based on the method outlined below in Subsection ~~XII~~XIII.B.b., Hays' initial Reasonable-Need Limitation should be 5,670.23 acre-feet of water per calendar year, for all of the R9 Water Rights combined with all other municipal water rights for which Hays is the place of use. The calculation for such initial estimate is shown ~~on~~in **Appendix ~~E~~D**.

~~117.~~183. Similarly, the Chief Engineer finds that, based on the method outlined below in Subsection ~~XII~~XIII.B.b., Russell's initial Reasonable-Need Limitation should be 1,841.3 acre-feet of water per calendar year, for all of the R9 Water Rights combined with all other municipal water rights for which Russell is the place of use. The calculation for such initial estimate is shown ~~on~~in **Appendix ~~F~~E**.

V. Treatment Losses

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~~118.~~184. The Cities have not determined whether treatment, if any, of the water from the R9 Ranch should take place before or after delivery of water to any users.

~~119.~~185. Current treatment technologies consume a portion of the raw water and generate non-potable wastewater but new treatment technologies are likely to develop over the life of the Project.

~~120.~~186. The reasonable quantity of water that may be diverted from the R9 Ranch for municipal use ~~must~~should include a reasonable quantity of water for Treatment Losses.

~~121.~~187. All water from the R9 Water Rights ~~must~~should be metered at the wellhead, as it leaves the pump station, and as it is delivered to any user. In addition, all Treatment Losses ~~must~~should be accurately quantified and reported as required by K.S.A. 82a-732.

VI. Change in Places of Use

~~122.~~188. The authorized places of use for the R9 Water Rights, as contingently changed by this Master Order from irrigation to municipal use, should be~~:~~ such places that are described in **Appendix F**.

~~a. the R9 Ranch;~~

189. The Chief Engineer finds that this contingent change in places of use is reasonable, will not impair existing rights, and relates to the same local source of supply as that to which the R9 Water Rights relate. *See* K.S.A. 82a-708b(a).

~~b.i. the City of Hays, Kansas, and its immediate vicinity as well as related areas in the Northeast Quarter (NE/4) of Section 19 and the Northwest Quarter (NW/4) of Section 36, Township 13 South, Range 18 West, Ellis County, Kansas; and~~

~~c. the City of Russell, Kansas, and its immediate vicinity.~~

VII. Rates of Diversion

A. Rates of Diversion for Consolidated Municipal Wells

~~123.~~190. Each of the R9 Water Rights was perfected and certified by individual wells, as reflected in the relevant certificates of appropriation.

~~124.~~191. The Change Applications propose to consolidate quantities from multiple R9 Water Rights and multiple wells into 14 proposed consolidated municipal wells (consolidated municipal wells A through N) as reflected in Table 1 attached as

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Appendix B and as shown on **Exhibit 33**, because it is more effective and efficient to divert the consolidated quantities from fewer wells.

~~125.~~192. Because of the contingent nature of the Change Approvals, the actual design of the proposed municipal wells has not yet been undertaken by the Cities.

~~126.~~193. The Change Applications propose that the rates of diversion for each of the new consolidated municipal wells be the greatest rate of the following:

a. the rate required to divert the full annual quantity allowed for each new well during a 180-day period of continuous operation;

b. the highest perfected rate of the irrigation wells being combined into a new municipal well;

c. the estimated rate that the water resources on the R9 Ranch are likely to be capable of producing based on existing saturated thickness and transmissivity data and before any additional hydrologic testing; and

d. a minimum rate of 700 gpm.

~~127.~~194. Such requested rates of diversion for each of the new consolidated municipal wells, as determined above, are summarized ~~below~~ in Table 2~~:~~ attached as **Appendix G**.

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~~Table 2~~

~~Consolidated Municipal Well~~	~~Consolidated Quantity (acre-feet)~~	~~Consolidated Rate (gallons per minute)~~
~~A~~	~~752.0~~	~~945~~
~~B~~	~~592.0~~	~~885~~
~~C~~	~~265.8~~	~~1260~~
~~D~~	~~591.3~~	~~1500~~
~~E~~	~~414.0~~	~~1270~~
~~F~~	~~285.0~~	~~1040~~
~~G~~	~~368.0~~	~~1040~~
~~H~~	~~608.0~~	~~765~~
~~I~~	~~519.8~~	~~805~~
~~J~~	~~540.0~~	~~700~~
~~K~~	~~471.3~~	~~700~~
~~L~~	~~377.9~~	~~950~~

~~Table 2~~		
~~Consolidated Municipal Well~~	~~Consolidated Quantity (acre-feet)~~	~~Consolidated Rate (gallons per minute)~~
~~M~~	~~449.3~~	~~950~~
~~N~~	~~421.4~~	~~1040~~
	~~6,756.8~~	

~~128.~~195. The Chief Engineer finds that the quantities from multiple R9 Water Rights and multiple wells, which quantities are available after conversion from irrigation to municipal use, should be contingently consolidated into 14 consolidated municipal wells (consolidated municipal wells A through N) as reflected in Table 1 attached as **Appendix B** and also in Table 3 attached as **Appendix ~~D~~H**, and as shown on **Exhibit 33**.

~~129.~~196. The Chief Engineer finds that the contingently consolidated rate for each of the 14 consolidated municipal wells (consolidated municipal wells A through N) is reasonable and should be the consolidated rates as reflected in Table 2 and Table 3.

B. Reductions of Rates of Diversion for R9 Water Rights

~~130.~~197. The Change Applications propose that each of the individual irrigation wells authorized by the R9 Water Rights be assigned to the new consolidated municipal well or wells, as set forth in Table 1 attached as **Appendix B**.

~~131.~~198. To result in a rate of diversion that is reasonable when each of the irrigation wells is assigned to one or more of the aforementioned consolidated wells, the individual rates of diversion for each of the R9 Water Rights either should be retained as the authorized rate of diversion set forth in the certificate of appropriation for such water right, or should be reduced to the rate or rates of diversion for the consolidated municipal well or wells as set out above in Table 2, whichever is less. The outcome of this comparison is shown in Table 3 attached as **Appendix ~~D~~H**.

~~132.~~199. Accordingly, the Chief Engineer finds that the individual rates of diversion for each of the R9 Water Rights either should be retained as the authorized rate of diversion set forth in the certificate of appropriation for such water right, or should be reduced to the rate or rates of diversion for the consolidated municipal well or wells as set out above in Table 2, whichever is less. The Chief Engineer finds that the outcome of this comparison is shown in Table 3, Column E, "Rate by Well and by Right (GPM)."

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C. Limitations on Rates of Diversion for R9 Water Rights When Sharing a Common Consolidated Municipal Well

~~133.~~200. To result in a combined rate of diversion that is reasonable for each consolidated municipal well, the Chief Engineer finds that, when multiple R9 Water Rights are authorized herein to divert water from a common consolidated municipal well, Limitations should be imposed such that the rate of diversion under the junior priority R9 Water Right(s) is limited to the rate of diversion for the consolidated municipal well as listed in Table 2, when combined with senior priority R9 Water Right(s~~). The Chief Engineer finds that such Limitations are shown in Table 3, Column G, "Rate Limitation by Well and by Right," attached as **Appendix D**~~); provided, however, and subject to priority of right during any water right administration, each R9 Water Right that is combined into a common point of diversion will be deemed to operate simultaneously at up to the rates set out in Table 2.

201. The Limitations that the Chief Engineer finds should be imposed as stated above are shown in Table 3, Column G, "Rate Limitation by Well and by Right (GPM)," attached as **Appendix H**.

~~134.~~202. The Cities are concerned that for one or more of the consolidated wells, they might not be able to find a suitable location for a single well within the area designated on the maps attached to the Change Applications. In addition, the Cities are concerned that more than one well may be needed or desired in the future, for example, when an original municipal well is replaced or to supplement a municipal well.

~~135.~~203. The Chief Engineer finds that the Cities' aforementioned concerns are reasonable. Accordingly, to (a) allow the Cities to file future applications requesting a change in the point of diversion for one or more of the 14 consolidated municipal wells A–N; (b) allow the Cities to divert each of the annual quantities of water set out in Table 2 ~~above~~ from more than one consolidated municipal well; and (c) otherwise provide the Cities with operational flexibility to operate the consolidated wells singly or in combination; the Chief Engineer finds that a future approval of an application to change the point of diversion of an R9 Water Right should either remove or modify, as needed, the reasonable rate Limitation discussed above and as shown in Table 3, Column G, "Rate Limitation by Well and by Right (GPM)," depending on the new reasonable rate for the new consolidated municipal well(s). Provided, however, that an R9 Water Right's rate of diversion that has been reduced as shown in Table 3, Column E, "Rate by Well and by Right (GPM)," should not be restored to the rate of diversion as set forth in the certificate of appropriation for such R9 Water Right (i.e., Table 3, Column B, "Authorized (Certified) Rate per Irrigation Well~~").~~ (GPM)").

VIII. Change in Points of Diversion

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A. Municipal ~~wells~~Wells

~~136.~~204. The Cities have selected 14 preliminary well sites designated as municipal wells A~~—~~N. *See* Table 2~~, supra.~~ attached as **Appendix G.** Specific well locations are more particularly described in the Change Applications and the Change Approvals. All of the previously approved irrigation wells are consolidated into one or more of the new municipal wells as shown on the map attached as **Exhibit 33** and in Table 1 attached as **Appendix B**.

~~137.~~205. The Cities have reviewed the existing data to formulate a plan for the diversion and transportation of water from the R9 Ranch to the Cities. Because the transfer proceedings have not yet been completed and because of the advisability of conducting hydrologic testing as part of the design process, the Cities have not selected precise well locations at this time.

~~138.~~206. The well-design process may reveal that optimum well locations are more than 300 feet from the preliminary well locations set out in the Change Approvals. For these and other reasons, the Cities have requested approval to place wells within 1,000 feet of the preliminary well locations.

~~139.~~207. The Chief Engineer finds that the Cities' request is reasonable ~~so~~as long as ~~other~~the following applicable well-location requirements and restrictions are met:

a. None of the municipal wells may be moved more than 2,640 feet from the points of diversion authorized in the certificates of appropriation or approved changes, if any, that predate this Master Order. *See* K.A.R. 5-25-2a(a).

b. All of the municipal wells must be completed in the same local source of supply in which the currently authorized wells were authorized to be completed. *See* K.S.A. 82a-~~708(b~~708b(a)(3).

c. All municipal wells must be more than 1,320 feet from wells that carry an earlier priority except those wells owned by the Cities. *See* K.A.R. 5-25-2(a).

d. All municipal wells must be more than 660 feet from all existing domestic wells, except those domestic wells owned by the Cities. *Id.*

~~e. For all municipal wells that have an alluvium as their source of supply, any future changes to the point of diversion must not decrease the~~

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~~distance between the well and the centerline of the stream by more than 10 percent. *See* K.A.R. 5-5-13.~~

e. There are ten existing irrigation wells on the west side of the R9 Ranch that are completed in the Arkansas River alluvium based on the "Alluvial Aquifer" geographic information system layer from the Kansas Data Access & Support Center. Each of the proposed municipal wells is either (a) farther from the center line of the Arkansas River than each of the ten currently authorized irrigation wells completed in the River alluvium that are being consolidated with a proposed municipal well or (b) is less than 10% closer to the center line of the Arkansas River than each of the ten currently authorized irrigation wells completed in the River alluvium that are being consolidated with a proposed municipal well. *See* K.A.R. 5-5-13. Any future changes to a point of diversion of an R9 Water Right must comply with K.A.R. 5-5-13.

B. Proximity to Existing Irrigation Wells Outside the R9 Ranch

~~140.~~208. The Cities have proposed prohibiting the location of any new municipal well within one-half mile of any existing irrigation well outside of the boundaries of the R9 Ranch. The excluded areas are shown in gray on **Exhibit 33**. Specifically, no new or replacement municipal well may be located within 2,640 feet of the authorized location, as of the date the Change Applications were filed, of any well authorized by DWR File Nos. ED30; 19,522; 24,992; 29,123; 32,661; or 33,028.

C. Summary of Findings Regarding Points of Diversion

~~141.~~209. The Change Applications comply with K.A.R. 5-5-13.

~~142.~~210. The Change Applications take into account the considerations and findings described in Subsections VIII.A. and B. above, and include maps showing:

a. the authorized irrigation well locations;

b. a one-half mile radius buffer around each of the authorized irrigation well locations;

c. the preliminary municipal well locations;

d. a 1,000-foot buffer around the preliminary municipal well locations; and

e. the proposed areal restrictions around the preliminary municipal well locations where such wells are authorized to be drilled without filing an application to change the point of diversion (which areal restrictions are shown

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separately in purple and in cross-hatching on the maps attached to the Change Applications).

~~143.~~211. The Chief Engineer finds that the preliminary municipal well locations set out in the Change Applications, including the areal restrictions around the preliminary municipal well locations as shown on the maps attached to the Change Applications, meet the foregoing considerations and findings, are reasonable, and should be contingently approved as provided herein.

212. The Chief Engineer finds that the requested changes in points of diversion are reasonable, will not impair existing rights, and relate to the same local source of supply as that to which the R9 Water Rights relate. *See* K.S.A. 82a-708b(a).

IX. Local Source of Supply

~~144.~~213. The Chief Engineer finds that the local sources of supply for each of the points of diversion listed in the R9 Water Rights' certificates of appropriation or approved changes, if any, that predate this Master Order, should be and are retained.

~~145.~~214. The Chief Engineer finds that regarding future applications that seek to increase the number of points of diversion for municipal use for one or more of the R9 Water Rights, any of such new points of diversion will relate to the same local source of supply as required by K.S.A. 82a-708b ~~so~~as long as they are within the local source of supply for the points of diversion in the appropriate certificate of appropriation for such R9 Water Right.

~~146.~~215. The Chief Engineer finds that a new or replacement municipal well approved pursuant to a future application that seeks to increase the number of points of diversion for municipal use for one or more of the R9 Water Rights will not result in an "additional well" under K.A.R. 5-5-16; provided that the number of wells does not exceed the total number of wells in the relevant certificate of appropriation for such R9 Water Right, and that the proposed well or wells relate to the same local source of supply as to which the original R9 Water Right relates. *See* **Appendix H**: Table 3, columns H and I, for potential future changes allowed.

~~147.~~216. The aforementioned findings are intended to and will allow the Cities to file applications that, if otherwise approvable, will change a point of diversion to allow any of the 14 consolidated municipal wells to be divided into more than one point of diversion.

~~ORDER~~

X. ~~The Definitions,~~Monitoring and Reporting Requirements

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217. For the ~~General Applicable Law, and the Mixed Findings of Fact~~future assessment and ~~Conclusions~~administration of the R9 Water Rights and to ensure compliance with this Master Order, the Chief Engineer finds that it is necessary to require additional annual water monitoring and reporting by the Cities regarding the R9 Water Rights, beyond what is normally required for annual water use reports under K.S.A. 82a-732.

218. Furthermore, the Chief Engineer finds that GMD5's expressed concern for the Cities' monitoring and reporting of ~~Law~~water quality, in addition to water quantity, is a valid concern. In response to this concern, the Cities voluntarily amended their monitoring plan for the R9 Ranch to include an appropriate water-quality monitoring component. *See* the Water Level & Water Quality Monitoring Plan for the R9 Ranch, February 2019, attached as **Exhibit 34**. The Chief Engineer finds that such amended plan adequately addresses water quality monitoring concerns.

219. Accordingly, the Chief Engineer finds that the Cities should comply with the monitoring and reporting requirements ordered below in Section XX.

ORDER

~~148.~~220. The DEFINITIONS, the GENERAL APPLICABLE LAW, and the MIXED FINDINGS OF FACT AND CONCLUSIONS OF LAW are incorporated in this ~~Order~~ORDER section by reference.

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~~149.~~221. After careful review of the Change Applications filed by the Cities in anticipation of a water transfer, careful consideration of the comments received from GMD5 and the public as discussed above in Subsection I.C., and pursuant to K.S.A. 82a-708b, K.A.R. 5-5-9 (1994 version), K.A.R. 5-50-2(x), and K.A.R. 5-50-7, the Chief Engineer orders that the Change Applications are hereby contingently approved, as set forth in the various Change Approvals attached as **Exhibits 1~~–~~32,** for the reasons and on the terms and conditions set out therein and in this Master Order.

~~X.~~XI. Beneficial Use

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~~150.~~222. The requested change of the R9 Water Rights from irrigation to municipal use is reasonable and the change is contingently approved as provided herein.

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~~151.~~223. All water from the Project purchased by industrial users and diverted through the common distribution system will be deemed municipal use.

~~XI.~~XII. Quantities for Municipal Use (consumptive use determination)

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~~152.~~224. The Chief Engineer approves the Change Applications and thus approves a total of 6,756.8 acre-feet of water for municipal use per calendar year for the combined R9 Water Rights, in the individual yearly quantities set out in Table 1 attached as **Appendix B** and in the various Change Approvals attached as **Exhibits 1~~–~~ 32** and incorporated herein. As provided below and in the various Change Approvals, these authorized quantities are subject to the ~~Ten-Year Rolling Aggregate~~TYRA Limitation and the Reasonable-Need Limitations.

~~XII.~~XIII. Limitations on Quantities for Municipal Use

A. ~~Ten-Year Rolling Aggregate~~TYRA Limitation

~~153.~~225. The authorized quantities of water for municipal use approved in Section ~~XI~~XII. above are subject to ~~a~~the TYRA Limitation on the combined R9 Water Rights based on ~~certain~~the factors considered in ~~Subsections~~Subsection IV.A~~. and IV.B~~. above, including the model results that estimated the long-term yield from the R9 Water Rights.

~~154.~~226. Accordingly, the total quantity of water that may be diverted for municipal use from the combined R9 Water Rights may not exceed the ~~Ten-Year Rolling Aggregate~~TYRA Limitation of 48,000 acre-feet of water during any, each, and every ten consecutive calendar years.

~~155.~~227. The ~~Ten-Year Rolling Aggregate~~TYRA Limitation is imposed for the exclusive benefit of the public as a whole and not for the benefit of any other water right, person, or entity. Because the ~~Ten-Year Rolling Aggregate~~TYRA Limitation is not for the benefit of any other water right, person, or entity, it does not confer any benefits or create any rights in any third party.

~~156.~~228. The ~~Ten-Year Rolling Aggregate~~TYRA Limitation does not amount to a Limitation on the quantity of water that may be diverted for municipal use from additional sources that might be developed in the future via acquisition and conversion of other water rights, applications for new water appropriation rights, or some form of augmentation from sources outside the current boundaries of the R9 Ranch.

~~157.~~ Pursuant to a City's request, the Chief Engineer may increase the quantity of water that can be diverted under the ~~Ten-Year Rolling Aggregate~~TYRA Limitation~~ or may remove the Ten-Year Rolling Aggregate Limitation entirely,~~ if such a request is in writing, with notice to both DWR and GMD5, and the City demonstrates to the Chief Engineer's reasonable satisfaction that~~:~~

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~~a.~~229. ~~In the case of a request to increase the quantity,~~ the request (1) is based on a new estimate from a groundwater model, which estimate and model are supported by data and/or methods demonstrated to be comparable or superior to the methods used for the estimate in the model approved by the Chief Engineer in this Master Order; and (2) provides a new estimate of the yield that is larger than estimated in the model approved by the Chief Engineer in this Master Order.

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~~b. In the case of a request to remove the Limitation entirely, the request shows either that (1) a substantial portion of the Arkansas-Pickerel Subbasin of the Upper Arkansas River Basin as designated in the National Hydrography Dataset (NHD), USGS 2012, Kansas Surface Water Register, KDHE 2013, HUC 8 boundaries, USDA/NRCS/USGS 2004, within Edwards, Ford, Hodgeman, Kiowa, or Gray Counties in Kansas, including the adjacent drainages of Coon and Cow Creeks, has become re-opened to new appropriations for other than temporary or term permits, and such reopened portion is upstream or, in the case of groundwater, is upgradient, from the R9 Ranch; or (2) some of the material restrictions in the Arkansas River IGUCA Order issued by the Chief Engineer on September 29, 1986, as amended on March 6, 1987, on August 10, 2011, and again on October 14, 2013, have been substantially lifted or reduced and have not effectively been replaced with another conservation mechanism that is equal to or more restrictive than the terms of such IGUCA order.~~

~~158.~~230. Prior to deciding whether to approve any such requested increase ~~or removal~~ of the ~~Ten-Year Rolling Aggregate~~TYRA Limitation, the Chief Engineer ~~may~~shall hold a public hearing or hearings on the specific question of whether the City ~~clearly~~ has demonstrated the above requirements to the Chief Engineer's reasonable satisfaction.

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~~159. The Ten-Year Rolling Aggregate Limitation shall be removed if either:~~

~~a. all of the Arkansas-Pickerel Subbasin of the Upper Arkansas River Basin as designated in the National Hydrography Dataset (NHD), USGS 2012, Kansas Surface Water Register, KDHE 2013, HUC 8 boundaries, USDA/NRCS/USGS 2004, within Edwards, Ford, Hodgeman, Kiowa, or Gray Counties in Kansas, including the adjacent drainages of Coon and Cow Creeks, has become re-opened to new appropriations for other than temporary or term permits; or~~

~~b. all of the restrictions in the Arkansas River IGUCA Order issued by the Chief Engineer on September 29, 1986, as amended on March 6, 1987, on August 10, 2011, and again on October 14, 2013, have been lifted and have not effectively been replaced with another conservation mechanism that is equal to or more restrictive than the terms of such IGUCA order.~~

B. Reasonable-Need Limitations

a. Imposition of ~~the~~ Reasonable-Need Limitations

~~160.~~231. Pursuant to the method provided below in Subsection ~~XII~~XIII.B.b., the Reasonable-Need Limitation initially imposed on Hays is as follows:~~-~~ the maximum reasonable annual quantity of water for municipal use by Hays, for all of the R9 Water Rights when combined with all other municipal water rights for which Hays or its immediate vicinity, as well as related areas in the Northeast Quarter (NE/4) of Section 19 and the Northwest Quarter (NW/4) of Section 36, in Township 13 South, Range 18 West, Ellis County, Kansas, ~~-~~is the place of use, is 5,670.23 acre-feet of water~~; and~~.

~~161.~~232. Pursuant to the method provided below in Subsection ~~XII~~XIII.B.b., the Reasonable-Need Limitation initially imposed on Russell is as follows:~~-~~ the maximum reasonable annual quantity of water for municipal use by Russell, for all of the R9 Water Rights when combined with all other municipal water rights for which Russell or its immediate vicinity is the place of use, is 1,841.3 acre-feet of water.

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~~162.~~233. The particular calculations for the aforementioned initial Reasonable-Need Limitations are shown on **Appendices ~~E~~D** and ~~F~~E, respectively. Per the calculation method set forth below, only municipalities with populations that exceed 500 people in the appropriate Region were considered and are depicted in such appendices.

~~163.~~234. Upon a City's providing the Chief Engineer with written notice along with the appropriate supporting documentation referenced below in Subsection ~~XII~~XIII.B.b., the Reasonable-Need Limitation for that City will increase any time the method set out below in Subsection ~~XII~~XIII.B.b. results in a greater quantity for such City.

~~164.~~235. The quantities allocated to the Cities by the Reasonable-Need Limitations can be increased~~,~~ but not decreased.

~~165.~~236. Each City is responsible for compliance with its own applicable Reasonable-Need Limitation.

b. Method to Establish Reasonable-Need Limitations

~~166.~~237. The Reasonable-Need Limitation for each City will be based on an assumed growth rate of 2% per year for ten years. This ten-year period begins on January 1 following the submission of the appropriate supporting documentation to the Chief Engineer.

~~167.~~238. The Reasonable-Need Limitation for each City will be determined as follows:

a. The product of:

i. the 5-year average daily per capita municipal use by municipalities with populations that exceed 500 people in the appropriate Region (Region Five for Hays and Region Six for Russell) using the most recently published USGS data (or if such data is no longer published by USGS, its substantially equivalent data from DWR) available when the Cities submit the appropriate supporting documentation to the Chief Engineer~~,~~;

ii. 365.25 days;

iii. $(1 + 0.02)^{10}$; and

iv. the actual or estimated U.S. Census population for the City, as determined by the U.S. Census Bureau.

b. Plus each of the following, to the extent not otherwise included in the 5-year average daily per capita municipal use referred to above in

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subparagraph a.i., and as supported with appropriate documentation to the Chief Engineer's reasonable satisfaction:

i. ~~Water~~water sold by the City to industrial, stock, and bulk customers;

ii. ~~Water~~water sold by the City to other public water suppliers;

iii. ~~Other~~other metered water;

iv. ~~Other~~other unmetered water; and

v. Treatment Losses.

~~XIII.~~XIV. Summary of Quantities for Municipal Use, and Limitations Thereon

~~168.~~239. Given the approvals made and the Limitations imposed in this Master Order, the total quantity of water that may be diverted during any one calendar year from all of the R9 Water Rights combined shall be, effectively, the lowest of:

a. 6,756.8 acre-feet of water to be diverted for municipal use;

b. the amount for that year that complies with the ~~Ten-Year Rolling Aggregate~~TYRA Limitation; and

c. the combined Reasonable-Need Limitations as determined above in Subsection ~~XII~~XIII.B.

XV. Treatment Losses

~~XIV.~~I. The reasonable quantity of water that may be diverted from ~~Places of Use~~

~~169. The authorized place of use for the R9 Water Rights, as contingently changed by this Master Order from irrigation to municipal use, includes the City of Hays, Kansas, and its immediate vicinity as well as related areas in the Northeast Quarter (NE/4) of Section 19 and the Northwest Quarter (NW/4) of Section 36, Township 13 South, Range 18 West, Ellis County, Kansas.~~

240. ~~The authorized place~~the R9 Ranch for municipal use must include a reasonable quantity of water for Treatment Losses, if any.

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241. All water from the R9 Water Rights must be metered at the wellhead, as it leaves the pump station, and as it is delivered to any user. In addition, all Treatment Losses, if any, must be accurately quantified and reported as required by K.S.A. 82a-732.

XVI. Places of Use

~~170.~~242. The authorized places of use for the R9 Water Rights, as contingently changed by this Master Order from irrigation to municipal use, ~~includes the City of Russell, Kansas, and its immediate vicinity~~are such places that are described in **Appendix F**.

~~XV.~~XVII. Rates of Diversion

~~171.~~243. For the reasons discussed above in ~~Section~~Sections VII. and VIII., the quantities from multiple R9 Water Rights and multiple wells, which quantities are available after conversion from irrigation to municipal use, are consolidated into 14 consolidated municipal wells (consolidated municipal wells A through N) with approved consolidated rates as set out in Table 3 attached as **Appendix ~~D~~H**.

~~172.~~244. Limitations are imposed on the rates of diversion for some of the R9 Water Rights such that when wells from multiple R9 Water Rights are consolidated, the rate of diversion under the junior priority R9 Water Right(s) is limited when combined with a senior priority R9 Water Right(s), as shown in Table 3, Column ~~E, "Rate by Well and by Right (GPM)."~~G, "Rate Limitation by Well and by Right (GPM)," and as provided in each individual Change Approval; provided, however, and subject to priority of right during any water right administration, each R9 Water Right that is combined into a common point of diversion will be deemed to operate simultaneously at up to the rates set out in Table 2.

~~173.~~245. A future approval of an application to change the point of diversion of an R9 Water Right either will remove or modify, as needed, the reasonable rate Limitation discussed above and shown in Table 3, Column G, "Rate Limitation by Well and by Right (GPM)," and as provided in the particular individual Change Approval, depending on the new reasonable rate for the new consolidated municipal well(s). Provided, however, that an R9 Water Right's rate of diversion that has been reduced as shown in Table 3, Column E, "Rate by Well and by Right (GPM)," should not be restored to the rate of diversion as set forth in the certificate of appropriation for such R9 Water Right (i.e., Table 3, Column B, "Authorized (Certified) Rate per Irrigation Well").

~~XVI.~~XVIII. Points of Diversion

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~~174.~~246. As more fully discussed above in ~~Section~~Sections VII. ~~above,~~and VIII., the 14 preliminary municipal well locations shown in **Exhibit 33**, in Table 1 attached as **Appendix B**, and in the Change Applications, including the areal restrictions (shown in purple and in cross-hatching) around the preliminary municipal well locations as shown on the maps attached to the Change Applications, are reasonable and are approved. The proposed municipal wells A–N are authorized to be drilled within those areas without filing an application to change the point of diversion.

~~175.~~247. The approved well locations comply with the following requirements:

a. None of the municipal wells may be moved more than 2,640 feet from the currently authorized points of diversion. *See* K.A.R. 5-25-2a(a).

b. All of the municipal wells must be completed in the same local source of supply in which the currently authorized wells were authorized to be completed, as provided below in Section XVII. *See* K.S.A. 82a-~~708(b~~708b(a)(3).

c. All municipal wells must be more than 1,320 feet from wells that carry an earlier priority except those wells owned by the Cities. *See* K.A.R. 5-25-2(a).

d. All municipal wells must be more than 660 feet from all existing domestic wells, except those domestic wells owned by the Cities. *Id.*

~~e. No new or replacement municipal well may be located within 2,640 feet of the authorized location, as of the date the Change Applications were filed, of any well authorized by DWR Files ED30; 19,522; 24,992; 29,123; 32,661; and 33,028. The excluded areas are shown in gray on **Exhibit 31**.~~

e. There are ten existing irrigation wells on the west side of the R9 Ranch that are completed in the Arkansas River alluvium based on the "Alluvial Aquifer" geographic information system layer from the Kansas Data Access & Support Center. Each of the proposed municipal wells is either (a) farther from the center line of the Arkansas River than each of the ten currently authorized irrigation wells completed in the River alluvium that are being consolidated with a proposed municipal well or (b) is less than 10% closer to the center line of the Arkansas River than each of the ten currently authorized irrigation wells completed in the River alluvium that are being consolidated with a proposed

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municipal well. *See* K.A.R. 5-5-13. Any future changes to a point of diversion of an R9 Water Right must comply with K.A.R. 5-5-13.

~~XVII.~~XIX. Local Source of Supply

~~176.~~248. The local sources of supply for each of the points of diversion listed in the R9 Water Rights' certificates of appropriation or approved changes, if any, that predate this Master Order, are retained so that any point of diversion approved in the future (pursuant to future applications that seek replacement wells, to increase the number of points of diversion for municipal use for one or more of the R9 Water Rights, or both) will be deemed to relate to the same local source of supply, as required by K.S.A. 82a-708b, provided that any such future approved point of diversion is within the same local source of supply as the point(s) of diversion in the appropriate R9 Water Right's certificate of appropriation or approved changes, if any, that predate this Master Order.

~~177.~~249. Any new or replacement municipal well approved pursuant to a future application that seeks to increase the number of points of diversion for municipal use for one or more of the R9 Water Rights will not constitute an "additional well" under K.A.R. 5-5-16; provided that the number of wells does not exceed the total number of wells in the relevant certificate of appropriation for such R9 Water Right.

~~XVIII.~~XX. Monitoring and Reporting Requirements

~~178.~~250. In addition to providing normal annual water use reports under K.S.A. 82a-732 for each R9 Water right, the Cities also shall submit, no later than March 1 following the end of each calendar year after this Master Order becomes effective as provided in Section XXI below:

a. an annual municipal water use report dedicated solely to water use from the R9 Ranch, on the form attached hereto as **Appendix ~~G~~I**, which form DWR may amend from time to time; and

b. an annual progress report regarding the R9 Water Rights that:

i. provides the annual and total diversion amounts for each authorized R9 Water Right point of diversion for the previous 10 years; provides the total diversion amount from all R9 Water Rights for the previous 10 years; and otherwise demonstrates compliance with the ~~Ten-Year Rolling Aggregate~~TYRA Limitation; and

ii. demonstrates compliance with the ~~R9 Ranch~~ Water Level & Water Quality Monitoring Plan~~, dated April 19, 2017, and~~ for the R9 Ranch, February 2019, attached as **Exhibit 34**, which plan may not be amended without prior written approval of the Chief Engineer.

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~~179.~~251. Furthermore, each City shall submit, no later than March 1 following the end of each calendar year, unless extended in writing by the Chief Engineer, a report that demonstrates that City's own compliance with that City's Reasonable-Need Limitation.

~~180.~~252. Each City shall provide such other documentation that the Chief Engineer, with sufficient advance notice, may reasonably request of that City so that the Chief Engineer may determine that City's compliance with the conditions herein.

~~XIX.~~XXI. Effective Date and Expiration Date

~~181.~~253. The Cities filed the Change Applications in anticipation of a water transfer pursuant to K.S.A. 82a-1501, *et seq.*, and K.A.R. 5-50-1, *et seq.* Pursuant to K.A.R. 5-50-2(x) and K.A.R. 5-50-7, the terms and conditions of this Master Order (including its incorporated Change Approvals) remain contingent and conditioned upon, and will not become effective unless and until, such time as when both of the following ~~occur~~may have occurred:

a. the transfer panel issues a Transfer Order approving a transfer of water pursuant to the Kansas Water Transfer Act, K.S.A. 82a-1501, *et seq.*, and the Transfer Order becomes a final, non-appealable order under the KAPA and the KJRA; and

b. ~~Hays enters~~DWR receives written notice from Hays that Hays has entered into a written construction contract to drill one or more of the 14 proposed municipal wells (excluding test drilling) for the Project~~. Within five business days after the full execution of any such~~ , which notice, along with a copy of the contract, Hays must provide to DWR ~~with a copy of the same~~within thirty (30) business days after the contract is fully executed.

~~182.~~254. If by December 31, 2029, or any authorized extension thereof granted by the Chief Engineer in writing and for good cause shown, either of the following has occurred, then as of the date of such occurrence, this Master Order (including its incorporated Change Approvals) shall expire and be null and void and of no further force or effect and the R9 Water Rights shall retain the characteristics set out in their respective certificates of appropriation and approved changes, if any, that predate the issuance of this Master Order:

a. this Master Order has not become effective under the preceding paragraph; or

b. the Cities have abandoned the Project by providing the Chief Engineer with a duly authorized Resolution by the Hays City Commission and a duly authorized Resolution by the Russell City Council.

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~~XX.~~XXII. Petition for Administrative Review

~~183.~~255. Any person~~-~~ who is aggrieved by this Master Order may file a petition for administrative review by the Secretary pursuant to K.S.A. 82a-708b, K.S.A. 2016 Supp. 82a-1901, and K.S.A. 77-527. K.S.A. 2016 Supp. 82a-1901 applies because the proceeding regarding this matter began before the 2017 amendments became effective.

~~184.~~256. A petition for administrative review by the Secretary must include a statement of its basis as provided in K.S.A. 77-527(c).

~~185.~~257. This Master Order and its incorporated Change Approvals will become final orders, without further notice, unless a petition for administrative review by the Secretary pursuant to K.S.A. 82a-708b, K.S.A. 2016 Supp. 82a-1901, and K.S.A. 77-527 is filed within 15 days after the date of service shown on the Certificate of Service.

~~186.~~258. Any request for administrative review by the Secretary must be in writing and submitted to the attention of:

Chief Legal Counsel,
Kansas Department of Agriculture,
1320 Research Park Drive,
Manhattan, Kansas 66502,
Fax: (785) 564-6777,

with copies to those shown in the Certificate of Service.

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Dated at ~~Topeka~~Manhattan, Kansas, on this ____ day of _____, ~~2018.~~2019.

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_____
David W. Barfield, P.E.
Chief Engineer
Division of Water Resources
Kansas Department of Agriculture

ACKNOWLEDGMENT

State of Kansas)
) SS
County of Shawnee)

The foregoing MASTER ORDER CONTINGENTLY APPROVING CHANGE APPLICATIONS REGARDING R9 WATER RIGHTS was acknowledged before me on this ___ day of _____, ~~2018~~2019, by David W. Barfield, P.E., Chief Engineer, Division of Water Resources, Kansas Department of Agriculture.

_____
Notary Public

CERTIFICATE OF SERVICE

On this ___ day of _____, ~~2018~~2019, I hereby certify that this MASTER ORDER CONTINGENTLY APPROVING CHANGE APPLICATIONS REGARDING R9 WATER RIGHTS was mailed postage prepaid, first class, U.S. mail to the following:

Toby Dougherty, City Manager~~,~~
~~CITY OF HAYS~~
~~CITY HALL 16TH & MAIN~~
~~PO BOX 490~~
~~HAYS KS 67601~~

_____Jon Quinday, City Manager~~,~~
CITY OF HAYS
City Hall, 16th & Main
~~RUSSELL~~P.O. Box 490
Hays, KS 67601

CITY OF RUSSELL
133 W. ~~8TH STEET~~8th Street
P.O. Box 112
Russell, KS 67665

David M. Traster
FOULSTON SIEFKIN LLP
1551 N. ~~1551 N.~~ Waterfront Parkway, Suite 100
~~Wichita, Kansas 67206-4466~~
~~Phone: 316-291-9725~~
~~E-mail: dtraster@foulston.com~~

Daniel J. Buller
FOULSTON SIEFKIN LLP

~~Daniel J.~~ _____ ~~Buller~~
~~Foulston Siefkin LLP~~
9225 Indian Creek Parkway, Suite 600
Wichita, Kansas 67206-4466
~~Phone: 913-253-2179~~
~~E-mail: dbuller@foulston.com~~
Overland Park, Kansas 66210

John T. Bird
Todd Powell
GLASSMAN BIRD AND POWELL, LLP
Attn: Attorneys for the City of Hays, Kansas
200 West Thirteenth Street
Hays, KS 67601-0727

Kenneth L. Cole
WOELK & COLE
4 S. Kansas St.
P.O. Box 431
Russell, KS 67665-0431

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Stafford Field Office
Stockton Field Office
Big Bend Groundwater Management District No. 5

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KDA Staff

Appendix A:
Legal Description of the R9 Ranch

(Note that the R9 Ranch is visually depicted on the map attached to the Master Order as **Exhibit 33**.)

PARCEL #1
Lots 5, 6 and 7, in Section 36, Township 25 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas, and lying east of the Arkansas River.

PARCEL #2
All of Section 15, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #3
The Northwest Quarter of Section 14, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #4
All of Section 11, Township 26 South, Range 20 West of the sixth Principal Meridian, Edwards County, Kansas.

PARCEL #5
Lots 4, 5, 6, and 7 and the Southeast Quarter of the Southwest Quarter and the Southeast Quarter of Section 10, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #6
Lots 7, 8, 9, and 10 and the East Half of the Southeast Quarter, and the Southwest Quarter of the Southeast Quarter of Section 2, EXCEPT 20 ACRES, more or less, in Section 2 described as follows:

Commencing at the Southeast corner of Section 2, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas; thence North 1,914.77 feet; thence West at right angles 2,539.63 feet; thence Northwesterly on an angle of 59 degrees 48'45" a distance of 63.6 feet for a place of beginning; thence in a Northeasterly direction at an angle of 65 degrees a distance of 2,314.63 feet; thence Westerly to the bank of the Arkansas River; thence Southwesterly along the bank of the Arkansas River to the place of beginning.

PARCEL #7

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All of Section 1, Township 26 South, Range 20 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #8
All of Section 32, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #9
All of Section 31, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas; except a 40-acre tract described as: Southwest Quarter of the Southeast Quarter (SW/4 SE/4) of Section 31, Township 25 South, Range 19 West.

PARCEL #10
That part of the West Half of Section 30, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas, lying East of the Arkansas River.

PARCEL #11
All of Section 29, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #12
All of Section 5, Township 26 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #13
Lots 1 and 2 and the South half of the North Half and the Southwest Quarter of Section 4, Township 26 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

PARCEL #14
The Southwest Quarter and the Southwest Quarter of the Southeast Quarter or Section 33, Township 25 South, Range 19 West of the Sixth Principal Meridian, Edwards County, Kansas.

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Appendix B:
Table 1

Table 1
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DWR File No.	Circle No.	Well Location	Section, Township & Range	Crop	Acre Feet Converted from Irrigation to Municipal Use by Water Right (authorized quantity after change)	Acre Feet Converted from Irrigation to Municipal Use By Well	New Well Location (see Exhibit 33)
21,729-D1	8	NC NW/4	Sec.29-T25S-R19W	Alfalfa		86.0	A
		NE/4 SW/4 NW/4	Sec.29-T25S-R19W			102.0	A
	9	NC NE/4	Sec.29-T25S-R19W	Alfalfa		188.0	A
21,729-D1 Totals					376.0		
21,729-D2	7	NC SW/4	Sec.29-T25S-R19W	Alfalfa		74.0	A
		NE/4 SW/4 SW/4	Sec.29-T25S-R19W			114.0	A
	10	NC SE/4	Sec.29-T25S-R19W	Alfalfa		188.0	A
21,729-D2 Totals					376.0		
21,730	1	NW/4 NE/4 SW/4	Sec.30-T25S-R19W	Alfalfa	176.0	176.0	G

Table 1
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DWR File No.	Circle No.	Well Location	Section, Township & Range	Crop	Acre Feet Converted from Irrigation to Municipal Use by Water Right (authorized quantity after change)	Acre Feet Converted from Irrigation to Municipal Use By Well	New Well Location (see Exhibit 33)
21,731	2	SW/4 SE/4 SW/4	Sec.30-T25S-R19W	Alfalfa		80.0	G
		NW/4 NE/4 NW/4	Sec.31-T25S-R19W			192.0	
	3	NW/4 NE/4 SW/4	Sec.31-T25S-R19W	Alfalfa		177.0	H
		NC W side NE/4 SW/4	Sec.31-T25S-R19W			126.0	
	4	SW/4 NW/4 SW/4	Sec.32-T25S-R19W	Alfalfa		87.0	H
		SE/4 NE/4 SE/4	Sec.31-T25S-R19W			56.0	
	5	NC NE/4	Sec.31-T25S-R19W	Alfalfa		162.0	H
21,731 Totals					800.0		
21,732-D1	6	NC NW/4	Sec.32-T25S-R19W	Alfalfa		188.0	B
	11	NC NE/4	Sec.32-T25S-R19W	Alfalfa		165.0	B
21,732-D1 Totals					353.0		
21,732-D2	12	NC S/2	Sec.32-T25S-R19W	Alfalfa	240.0	240.0	B
21,733	13	SW/4 NW/4 SW/4	Sec.33-T25S-R19W	Alfalfa	189.0	189.0	C

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DWR File No.	Circle No.	Well Location	Section, Township & Range	Crop	Acre Feet Converted from Irrigation to Municipal Use by Water Right (authorized quantity after change)	Acre Feet Converted from Irrigation to Municipal Use By Well	New Well Location (see Exhibit 33)
21,734	14	Lot 3	Sec.5-T26S-R19W	Alfalfa		290.9	D
	15	NW/4 NE/4 SW/4	Sec.5-T26S-R19W	Corn		170.2	D
	16	NE/4 SW/4 SE/4	Sec.5-T26S-R19W	Corn		121.0	E
	17	Lot 2	Sec.5-T26S-R19W	Corn		130.2	D
	18	Lot 1	Sec.5-T26S-R19W	Alfalfa		176.8	C
21,734 Totals					889.1		
21,841	8A	NC Lots 1 & 2	Sec.4-T26S-R19W	Alfalfa	195.0	195.0	F
21,842	11A	NC SW/4	Sec.4-T26S-R19W	Alfalfa	195.0	195.0	E
22,325	19	Lot 1	Sec.1-T26S-R20W	Alfalfa	186.0	186.0	I
		Lot 2	Sec.1-T26S-R20W				
22,326	20	Lot 3 (Well A)	Sec.1-T26S-R20W	Corn	188	188	I
		Lot 3 (Well B)	Sec.1-T26S-R20W				
22,327	21	NC NE/4	Sec.1-T26S-R20W	Corn	145.8	145.8	I
		Lot 2	Sec.1-T26S-R20W				
22,329	24	NC SW/4	Sec.1-T26S-R20W	Corn	75.0	75.0	J
22,330	25	NC SE/4	Sec.1-T26S-R20W	Corn	75.0	75.0	J

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DWR File No.	Circle No.	Well Location	Section, Township & Range	Crop	Acre Feet Converted from Irrigation to Municipal Use by Water Right (authorized quantity after change)	Acre Feet Converted from Irrigation to Municipal Use By Well	New Well Location (see Exhibit 33)
22,331	22	NC SW/4 NW/4 Lot 9	Sec.1-T26S-R20W Sec.2-T26S-R20W	Alfalfa	180.0	180.0	J
22,332	23	NC SE/4 NC E/2 SE/4	Sec.2-T26S-R20W Sec.2-T26S-R20W	Corn	135.0	135.0	J
22,333	39	SE/4 SE/4 SW/4	Sec.2-T26S-R20W	Alfalfa	50.0	50.0	K
22,334	27	NC NE/4 NC N/2 NE/4	Sec.11-T26S-R20W Sec.11-T26S-R20W	Corn	136.1	136.1	K
22,335	26	NC NW/4 NC E/2 NW/4	Sec. 11-T26S-R20W Sec. 11-T26S-R19W	Corn	142.6	142.6	K
22,338	28	Lot 7 Lot 7	Sec.10-T26S-R20W Sec.10-T26S-R20W	Corn	116.6	116.6	L
22,339	29	Lot 5	Sec.10-T26S-R20W	Corn	118.8	118.8	L
22,340	31	NW/4 SE/4 SE/4	Sec.10-T26S-R20W	Corn	116.6	116.6	M
22,341	30	NW/4 NE/4 NW/4	Sec. 15-T26S-R20W	Alfalfa	188.0	188.0	M
22,342	36	NW/4 SW/4 NW/4	Sec. 14-T26S-R20W	Corn	75.0	75.0	M
22,343	35	NE/4 SW/4 NE/4	Sec. 15-T26S-R20W	Corn	122.0	122.0	N

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DWR File No.	Circle No.	Well Location	Section, Township & Range	Crop	Acre Feet Converted from Irrigation to Municipal Use by Water Right (authorized quantity after change)	Acre Feet Converted from Irrigation to Municipal Use By Well	New Well Location (see Exhibit 33)
22,345	38	NC SE/4	Sec. 15-T26S-R20W	Alfalfa	159.0	159.0	N
22,346	37	SW/4 NE/4 SW/4	Sec. 15-T26S-R20W	Corn	140.4	140.4	N
27,760	32	NC SW/4	Sec. 11-T26S-R20W	Corn		142.5	L
	33	NC SE/4	Sec. 11-T26S-R20W	Corn		142.6	K
		NE/4 SW/4 SE/4	Sec. 11-T26S-R20W				
27,760 Totals					285.1		
29,816	9A	NC N/2 S/2 NE/4	Sec. 4-T26S-R19W	Alfalfa		90.0	F
	10A	NC S/2 NW/4	Sec. 4-T26S-R19W	Alfalfa		98.0	E
29,816 Totals					188.0		
30,083	36	NC E/2 W/2 NW/4	Sec. 14-T26S-R20W	Corn	69.7	69.7	M
30,084	24 & 25	NC S/2	Sec.1-T26S-R20W		75.0	75.0	J
DWR File No. Total					~~6,756.8~~		

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Appendix C:
K.A.R. 5-5-9 (1994 version)

K.A.R. 5-5-9. Criteria for the approval of an application for a change in the use made of water from irrigation to any other type of beneficial use of water.

(a) The approval of a change in the use made of water from irrigation to any other type of beneficial use shall not be approved if it will cause the net consumptive use from the local source of water supply to be greater than the net consumptive use from the same local source of water supply by the original irrigation use based on the following criteria:

(1) The maximum annual quantity of water to be allowed by the change approval shall be the net irrigation requirement (NIR) for the 50% chance rainfall for the county of origin, as set forth in K.A.R. 5-5-12, multiplied by the maximum acreage legally irrigated under the authority of the water right in any one calendar year during the perfection period. For vested rights, the acreage used shall be the maximum acreage irrigated prior to June 28, 1945; or

(2) if the applicant establishes to the satisfaction of the chief engineer the need for more flexibility in the authorized annual quantity, the application may be approved subject to the following limits.

(A) The maximum annual quantity of water to be allowed by the change approval shall be the NIR for the 80% chance rainfall for the county of origin, as set forth in K.A.R. 5-5-12, multiplied by the maximum acreage legally irrigated in any one calendar year during the perfection period. For vested rights the acreage used shall be the maximum acreage irrigated prior to June 28, 1945.

(B) The new type of beneficial use shall be further limited by a five year fixed allocation of water in which the NIR for a 50% chance rainfall for the county of origin, as set forth in K.A.R. 5-5-12, is multiplied by five times the maximum acreage lawfully irrigated in any one calendar year during the perfection period. For vested rights, the acreage used shall be the maximum acreage irrigated prior to June 28, 1945.

(C) An application for a term permit which will circumvent the five year allocation of water limit shall not be approved by the chief engineer.

(3) In determining whether the net consumptive use of water will be increased by the proposed change in the use made of water, the applicant shall be given credit by the chief engineer for any return flows from the proposed type of beneficial use which will return to the same local source of supply as the return flows from the originally authorized type of beneficial use as substantiated by the applicant to the satisfaction of the chief engineer by an engineering report or similar type of hydrologic analysis.

(4) The authorized quantity to be changed to the new type of beneficial use shall never exceed the maximum annual quantity authorized by the water right.

(5) If a water right which overlaps the authorized place of use of one or more other water rights, either in whole or in part, is being changed to a different type of beneficial use, the total net consumptive use of all water rights after the change is approved shall not exceed the total net consumptive use of all of the rights before the change is approved.

(6) The approval for a change in the use made of water shall also be limited by that quantity reasonable for the use proposed by the change in the use made of water.

(b) Upon request of the applicant, the historic net consumptive use actually made during the perfection period, or prior to June 28, 1945 in the case of vested rights, under the water right proposed to be changed shall be considered by the chief engineer, but the burden shall be on the owner to document that historic net consumptive use with an engineering study, or an equivalent documentation and analysis, and demonstrate to the satisfaction of the chief engineer that the analysis submitted by the applicant is a more accurate estimate of the historic net consumptive use than the net consumptive use calculated using the methodology set forth in paragraph (a)(1).

(c) If the methods set forth in subsection (a) produce an authorized annual quantity of water which appears to be unrealistic and could result in impairment of other water rights, the chief engineer shall make a site-specific net consumptive use analysis to determine the quantity of water which was actually beneficially consumed under the water right. The quantity approved shall be limited to the quantity determined to be reasonable by the chief ~~engineer's~~engineer's analysis. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-708b; effective Nov. 28, 1994.)

Appendix D:
Table 3

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
21,729-D1	615 225 275	A A A	945	945	-	NONE	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM
TOTAL RATE	1,215	-	-	945	270	-	-	-
21,729-D2	720 260 635	A A A	945	945	- - -	945	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM
TOTAL RATE	LIMIT TO 1,685	-	-	945	740	-	-	-
21,730	795	C	1,040	795	-	NONE	1 WELL AT 795 GPM	1 WELL AT 795 GPM
TOTAL RATE	795	-	-	795	0	-	-	-
21,731	380 245 525 735 605	H H H H H	765	765	- - - - -	NONE	UP TO 5 WELLS WITH A TOTAL COMBINED RATE OF 765 GPM	UP TO 7 WELLS WITH A TOTAL COMBINED RATE OF 1,805 GPM

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
	625 450	C C	1,040	1,040	- -	1,040	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 1,040 GPM	
TOTAL RATE	2,565	-	-	1,805	-1,760	-	-	-
21732 D1	780 715	B B	885	885	- -	NONE	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 885 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 885 GPM
TOTAL RATE	1,495	-	-	885	-610	-	-	-
21,732 D2	885	B	885	885	-	885	1 WELL AT 885 GPM	1 WELL AT 885 GPM
TOTAL RATE	885	-	-	885	0	-	-	-
21,733	915	C	1,360	915	-	NONE	1 WELL AT 915 GPM	1 WELL AT 915 GPM
TOTAL RATE	915	-	-	915	0	-	-	-
21,734	1,035	E	1,270	1,035	-	NONE	1 WELL AT 1,035 GPM	UP TO 5 WELLS WITH A TOTAL COMBINED RATE OF 3,470 GPM
	1,500 1,050 1,250	D D D	1,500	1,500	- - -	NONE	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 1,500 GPM	
	935	C	1,360	935	-	1,360	1 WELL AT 935 GPM	-
TOTAL RATE	LIMIT TO 4,800	-	-	3,470	-1,330	-	-	-

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
21,841	890	F	1,040	890	-	NONE	1 WELL AT 890 GPM	1 WELL AT 890 GPM
TOTAL RATE	890	-	-	890	0	-	-	-
21,842	900	F	1,270	900	-	1,270	1 WELL AT 900 GPM	1 WELL AT 900 GPM
TOTAL RATE	900	-	-	900	0	-	-	-
22,325	805 530	I I	805	805	- -	NONE	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM
TOTAL RATE	LIMIT TO 1,000	-	-	805	-195	-	-	-
22,326	690 565	I I	805	805	- -	805	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM
TOTAL RATE	LIMIT TO 1,000	-	-	805	-195	-	-	-
22,327 -	475 490	I I	805	805	- -	805	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM
TOTAL RATE	LIMIT TO 950	-	-	805	-145	-	-	-
22,329	570	I	700	570	-	NONE	1 WELL AT 570 GPM	1 WELL AT 570 GPM
TOTAL RATE	570	-	-	570	0	-	-	-
22,330	620	I	700	620	-	700	1 WELL AT 620 GPM	1 WELL AT 620 GPM
TOTAL RATE	620	-	-	620	0	-	-	-

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
22,331	640 645	J J	700	700	- -	700	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 1,000	-	-	700	-200	-	-	-
22,332	460 655	J J	700	700	- -	700	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 980	-	-	700	-280	-	-	-
22,333	520	K	700	520	-	NONE	1 WELL AT 520 GPM	1 WELL AT 520 GPM
TOTAL RATE	520	-	-	520	0	-	-	-

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
22,334	639 630	K K	700	700	- -	700	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 890	-	-	700	-190	-	-	-
22,335	680 555	K K	700	700	- -	700	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 1,000	-	-	700	-300	-	-	-
22,338	950 785	L L	950	950	- -	NONE	UP TO 2 WELLS WITH A COMBINED RATE OF 950 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 950 GPM
TOTAL RATE	LIMIT TO 950	-	-	950	0	-	-	-
22,339	680	L	950	680	-	950	1 WELL AT 680 GPM	1 WELL AT 680 GPM
TOTAL RATE	680	-	-	680	0	-	-	-
22,340	950	M	950	950	-	NONE	1 WELL AT 950 GPM	1 WELL AT 950 GPM
TOTAL RATE	950	-	-	950	0	-	-	-
22,341	920	M	950	920	-	950	1 WELL AT 920 GPM	1 WELL AT 920 GPM
TOTAL RATE	920	-	-	920	0	-	-	-
22,342	630	M	950	630	-	950	1 WELL AT 630 GPM	1 WELL AT 630 GPM

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A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
TOTAL RATE	620	-	-	620	0	-	-	-
22,343	810	N	1,040	810	-	NONE	1 WELL AT 810 GPM	1 WELL AT 810 GPM
TOTAL RATE	810	-	-	810	0	-	-	-
22,345	820	N	1,040	820	-	1,040	1 WELL AT 820 GPM	1 WELL AT 820 GPM
TOTAL RATE	820	-	-	820	0	-	-	-
22,346	600	N	1,040	600	-	1,040	1 WELL AT 600 GPM	1 WELL AT 600 GPM
TOTAL RATE	600	-	-	600	0	-	-	-
27,760	670	K	700	670	-	700	1 WELL AT 670 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 1,470 GPM
	800	L	950	800	-	950	1 WELL AT 800 GPM	
TOTAL RATE	1,470	-	-	1,470	0	-	-	-
29,816	750	F	1,040	750	-	1,040	1 WELL AT 750 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 1,550 GPM
	800	F	1,270	800	-	1,270	1 WELL AT 800 GPM	
TOTAL RATE	1,550	-	-	1,550	0	-	-	-

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
30,083	1,000	M	455	455	-	455	1 WELL AT 455 GPM	1 WELL AT 455 GPM
TOTAL RATE	LIMIT TO 1,085, 455 add to 22,342	-	-	545	-	-	-	
30,084	795	I	700	700	-	700	1 WELL AT 700 GPM	1 WELL AT 700 GPM
TOTAL RATE	795	-	-	700	95	-	-	-

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~~Appendix E:~~
Calculation of Hays' Reasonable-Need Limitation

The following calculation illustrates the result of the formula in Master Order Subsection ~~XII~~XIII.B.b., "Method to Establish Reasonable-Need ~~Limitation~~Limitations," as applied to Hays.

Region 5 Hays, Kansas	2012-2021 Reasonable Need	2022-2031 Reasonable Need	2032-2041 Reasonable Need
~~Hays'~~Hays' 2016 U.S. Census Bureau Estimated Population (Used for the initial Reasonable-Need Limitation calculation only.)	21,027		
2% growth multiplier for 4 years (1.02^4) (Used for the initial Reasonable-Need Limitation calculation only.)	1.0824322		
2% growth multiplier for 10 years (1.02^10)		1.2189944	1.2189944
~~Hays'~~Hays' Assumed Population (Based on 2% growth over 10 years.)		22,760	27,744
~~Hays'~~Hays' Estimated End-of-Decade Population (Starting point for the Reasonable-Need Limitation calculation and the starting point for the End-of-Decade population for the next decade.)	22,760 (Based on 2% growth over 4 years for the initial Reasonable-Need Limitation calculation only.)	27,744 (Based on 2% growth over 10 years.)	33,820 (Based on 2% growth over 10 years.)
Region 5 Average per capita water use in gallons, 2011-2015, for Cities with populations above 500	149.57	149.57	149.57
Days per year	365.25	365.25	365.25
Gallons	1,243,417,192.6	1,515,718,619.5	1,847,652,539.5
Gallons per Acre-Foot	325,851.4	325,851.4	325,851.4

Acre-Feet	3,815.9	4,651.6	5,670.2
Water sold by the City to industrial, stock, and bulk customers	Quantities in these categories are only added to the extent not otherwise included in the 5-year average daily per capita municipal use. No additional quantities for Hays are included at this time.		
Water sold by the City to other public water suppliers			
Other metered water			
Other unmetered water			
Treatment losses			
Calculated Reasonable Need	3,815.90	4,651.56	5,670.23

Public Water Supplier	**2010 Census**	**Region**	**2011 GPCD**	**2012 GPCD**	**2013 GPCD**	**2014 GPCD**	**2015 GPCD**	**AVG GPCD**
Hays	20510	5	99	102	88	81	88	92
Larned	4054	5	225	218	179	171	167	192
Phillipsburg	2581	5	139	168	141	147	177	154
Ellis	2062	5	101	109	75	72	75	86
Plainville	1903	5	149	139	118	110	126	128
Kinsley	1457	5	126	127	123	125	117	124
La Crosse	1342	5	145	159	138	112	106	132
Stockton	1329	5	115	121	114	120	116	117
Victoria	1214	5	110	113	84	58	55	84
Coldwater	828	5	226	235	255	167	177	212
Greensburg	777	5	309	362	269	233	242	283
Haviland	701	5	174	189	134	136	127	152
Logan	589	5	174	197	144	115	144	155
Protection	514	5	196	192	176	164	187	183
~~Lewis~~	~~451~~	~~5~~	~~154~~	~~133~~	~~132~~	~~120~~	~~116~~	~~131~~
~~Otis~~	~~282~~	~~5~~	~~268~~	~~176~~	~~165~~	~~134~~	~~125~~	~~174~~
~~Palco~~	~~277~~	~~5~~	~~111~~	~~111~~	~~95~~	~~102~~	~~91~~	~~102~~
~~Agra~~	~~267~~	~~5~~	~~115~~	~~105~~	~~113~~	~~78~~	~~85~~	~~99~~
~~Bison~~	~~255~~	~~5~~	~~74~~	~~94~~	~~77~~	~~77~~	~~74~~	~~79~~
~~Mullinville~~	~~255~~	~~5~~	~~266~~	~~215~~	~~185~~	~~165~~	~~183~~	~~203~~
~~Burdett~~	~~247~~	~~5~~	~~178~~	~~223~~	~~137~~	~~134~~	~~109~~	~~156~~
~~Schoenchen~~	~~207~~		~~72~~	~~84~~	~~72~~	~~67~~	~~64~~	~~72~~
~~Offerle~~	~~199~~	~~5~~	~~183~~	~~161~~	~~119~~	~~96~~	~~101~~	~~132~~
~~McCracken~~	~~190~~	~~5~~	~~67~~	~~80~~	~~66~~	~~54~~	~~54~~	~~64~~
~~Kirwin~~	~~171~~	~~5~~	~~125~~	~~120~~	~~111~~	~~102~~	~~91~~	~~110~~

Rush Center	170	5	155	139	109	117	120	128
Rozel	156	5	238	177	153	118	90	155
Woodston	136	5	92	129	64	85	8	76
Long Island	134	5	202	212	182	168	137	180
Prairie View	134	5	133	174	143	198	153	160
Damar	132	5	100	93	99	94	108	99
Liebenthal	103	5	78	79	72	79	75	77
Glade	96	5	69	77	71	95	79	78
Belpre	84	5	174	195	131	122	136	152
Timken	76	5	67	87	68	97	90	82
Alexander	65	5	99	123	89	86	100	99
Speed	37	5	109	118	91	103	62	97
Comanche Co. RWD #01		5	126	147	140	na	143	139
Comanche Co. RWD #02		5	800	702	809	741	705	751
Ellis Co. RWD #01C		5	na	na	na	106	121	114
Ellis Co. RWD #03		5	53	55	49	46	45	50
Ellis Co. RWD #06		5	150	167	161	110	132	144
Hays City Suburban Estates		5	162	183	103	103	123	135
Phillips Co. RWD #01		5	93	99	133	113	131	114
Rooks Co. RWD #01		5	75	74	76	93	91	82
Rooks Co. RWD #02		5	100	87	71	65	65	78
Rooks Co. RWD #03		5	175	146	156	215	77	154
Rush Co. RWD #01		5	276	283	168	192	223	228

Appendix ~~F.~~ E:
Calculation of Russell's Reasonable-Need Limitation

The following calculation illustrates the result of the formula in Master Order Subsection ~~XII~~XIII.B.b., "Method to Establish Reasonable-Need ~~Limitation~~Limitations," as applied to Russell. As of the issuance of this Master Order, however, Russell's existing water rights with sources in the Smoky Hill River Basin are subject to a Limitation such that the total water used cannot exceed 1,841.3 acre-feet per calendar year. Accordingly, the Master Order provides that Russell's Reasonable-Need Limitation is 1,841.3 acre-feet of water per calendar year instead of the lower value shown in the table below and that otherwise would apply.

Region 6, Russell, KS	2012-2021 Reasonable Need	2022-2031 Reasonable Need	2032-2041 Reasonable Need
~~Russell's~~Russell's 2016 Estimated Population (Used for the initial Reasonable-Need Limitation calculation only.)	4,506		
2% growth multiplier for 4 years (1.02^4) (Used for the initial Reasonable-Need Limitation calculation only.)	1.0824322		
2% growth multiplier for 10 years (1.02^10)		1.2189944	1.2189944
~~Russell's~~Russell's Assumed Population (Based on 2% growth over 10 years.)		4,877	5,945
~~Russell's~~Russell's Estimated End-of-Decade Population (Starting point for the Reasonable-Need Limitation calculation and the starting point for the End-of-Decade population for the next decade.)	4,877 (Based on 2% growth over 4 years for the initial Reasonable-Need Limitation calculation only.)	5,945 (Based on 2% growth over 10 years.)	7,247 (Based on 2% growth over 10 years.)
Region 6 Average per capita water use in gallons,	137.25	137.25	137.25

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2011-2015, for Cities with populations above 500			
Days per year	365.25	365.25	365.25
Gallons	244,508,776	298,054,834	363,327,179
Gallons per Acre-Foot	325,851.4	325,851.4	325,851.4
Acre-Feet	750.4	914.7	1,115.0
Water sold by the City to industrial, stock, and bulk customers	700	700	700
Water sold by the City to other public water suppliers	Quantities in these categories are only added to the extent not otherwise included in the 5-year average daily per capita municipal use. Other than water sold to industrial, stock, and bulk customers listed above, no additional quantities for Russell are included at this time.		
Other metered water			
Other unmetered water			
Treatment losses			
Calculated Reasonable Need	1,450.37	1,614.70	1,815.01

Public Water Supplier	2010 Census	Region	2011 GPCD	2012 GPCD	2013 GPCD	2014 GPCD	2015 GPCD	AVG GPCD
Hutchinson	42,080	6ML	155	153	137	141	137	145
Great Bend	15,995	6ML	122	131	114	114	105	117
Pratt	6,835	6ML	210	224	186	219	228	213
Russell	4,506	6ML	146	149	101	135	137	134
Beloit	3,835	6ML	126	141	124	120	123	127
Lyons	3,739	6ML	253	231	183	159	165	198
Kingman	3,177	6ML	131	138	108	118	100	119
Ellsworth	3,120	6ML	117	128	107	119	125	119
Hoisington	2,706	6ML	113	103	100	89	86	98
South Hutchinson	2,457	6ML	173	165	142	140	152	154
Sterling	2,328	6ML	107	100	91	90	91	96
Anthony	2,269	6ML	139	143	142	121	111	131
Ellinwood	2,131	6ML	125	135	101	91	100	110
Medicine Lodge	2,009	6ML	180	159	152	135	244	174
Smith Center	1,665	6ML	168	181	156	167	134	161
Harper	1,473	6ML	165	147	140	137	121	142
Osborne	1,431	6ML	144	191	141	119	121	143
Buhler	1,327	6ML	143	157	121	122	121	133
Lincoln Center	1,297	6ML	114	113	96	101	94	104

St. John	1,295	6ML	166	150	132	137	115	140
Haven	1,237	6ML	140	124	95	100	102	112
Nickerson	1,070	6ML	84	85	75	71	78	79
Stafford	1,042	6ML	151	155	100	106	107	124
Kiowa	1,026	6ML	157	114	182	162	127	148
Downs	900	6ML	149	181	137	132	131	146
Mankato	869	6ML	184	206	170	183	172	183
Wilson	781	6ML	109	112	94	96	101	102
Pretty Prairie	680	6ML	142	126	92	96	97	111
Claflin	645	6ML	158	168	128	114	136	141
Attica	626	6ML	272	249	199	257	253	246
Little River	557	6ML	149	118	95	105	130	119
Macksville	549	6ML	135	137	119	110	112	123

Appendix F:
Authorized Places of Use for the R9 Water Rights, as Contingently Changed by this Master Order from Irrigation to Municipal Use

1. the R9 Ranch as described by this Master Order

2. the City of Hays, Kansas, and its immediate vicinity as well as related areas in the Northeast Quarter (NE/4) of Section 19 and the Northwest Quarter (NW/4) of Section 36, Township 13 South, Range 18 West, Ellis County, Kansas

3. the City of Russell, Kansas, and its immediate vicinity

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Appendix G:
Table 2

KanopolisTable 2	492	6S	92	87	70	76	75	80		
NorwichConsolidated Municipal Well (see Exhibit 33)	491Consolidated Quantity (acre-feet)	6SConsolidated Rate (gallons per minute)	128	123	90		111	90	108	
Chase	477	6S		146	133	100	110	106	119	
Arlington	473	6S		122	99	75	83	85	93	
Kensington	473	6ML		113	159	131	149	157	142	
Cawker City	469	6S		142	152	128	129	134	137	
Cunningham	454	6S		228	231	186	166	185	199	
Holyrood	447	6S		160	170	106	115	118	134	
Glen Elder	445	6S		128	139	124	119	112	124	
Jewell	432	6S		63	69	60	63	61	63	
Lucas	393	6S		87	96	90	92	70	87	
Turon	387	6S		130	134	120	na	na	128	
Natoma	335	6S		107	110	104	80	88	98	
Gorham	334	6S		75	81	85	89	75	81	
Bushton	279	6S		149	147	120	138	133	137	
Sylvan Grove	279	6S		117	130	110	123	119	120	
Geneseo	267	6S		122	132	108	95	85	108	
Pawnee Rock	252	6S		102	91	110	72	62	87	
Lebanon	218	6S		84	87	96	91	80	88	
Sylvia	218	6S		124	131	115	96	114	116	
Tipton	210	6S		110	123	104	111	107	111	
Luray	194	6S		79	88	81	79	74	80	
Dorrance	185	6S		82	126	62	58	44	74	
Albert	175	6S		158	171	132	92	104	131	
Burr Oak	174	6S		150	183	108	141	201	157	
Hardtner	172	6S		275	255	139	174	177	204	
Iuka	163	6S		82	75	68	66	75	73	
Preston	158	6S		117	92	74	83	77	89	
Sharon	158	6S		210	218	144	151	171	179	
Lorraine	138	6S		104	102	80	61	63	82	
Sawyer	124	6S		191	158	137	137	126	150	

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Kanopolis Table 2	49 2	6S	92	87	70	76	75		80		
Norwich Consolidated Municipal Well (see Exhibit 33)	491 Consolidated Quantity (acre-feet)	6S Consolidated Rate (gallons per minute)	12 8	123	90		111	90	108		
Gaylord	114	6S		115	171	122	99	92	120		
Olmitz	114	6S		151	134	100	92	107	117		
Alton	103	6S		132	131	141	111	166	136		
Portis	103	6S		99	115	92	82	98	97		
Cullison	101	6S		214	185	156	221	151	185		
Bunker Hill	95	6S		100	108	102	82	95	97		
Formoso	93	6S		90	91	74	69	71	79		
Hazelton	93	6S		128	159	151	178	181	159		
Isabel	90	6S		160	132	101	83	77	111		
Zenda	90	6S		196	178	152	133	104	153		
Abbyville	87	6S		213	216	97	107	na	158		
Simpson	86	6S		108	98	111	118	109	109		
Coats	83	6S		175	135	167	163	215	171		
Raymond	79	6S		162	146	98	113	101	124		
Spivey	78	6S		138	135	131	108	118	126		
Barnard	70	6S		60	106	95	57	39	71		
Bluff City	65	6S		113	80	51	53	95	78		
Randall	65	6S		102	98	130	102	104	107		
Hunter	57	6S		na	na	na	na	na	na		
Paradise	49	6S		92	78	88	92	94	89		
Susank	34	6S		107	na	77	76	73	83		
Waldo	30	6S		60	119	75	73	84	82		
Barber Co. RWD #01	-	6S		193	184	157	159	152	169		
Barber Co. RWD #02	-	6S		581	551	497	617	609	571		
Barber Co. RWD #03	-	6S		95	85	67	109	107	93		
Barton Co. RWD #01	-	6S									
Barton Co. RWD #02	-	6ML		60	59	36	37	45	47		
Barton Hills WD	-	6S		145	42	41	45	47	64		
Beverly	-	6S		94	92	74	74	95	86		

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KanopolisTable 2	492	6S	92	87	70	76	75		80		
NorwichConsolidated Municipal Well (see Exhibit 33)	491Consolidated Quantity (acre-feet)	6SConsolidated Rate (gallons per minute)	128	123	90		111	90	108		
Esbon	-	6S		141	137	120	148	114	132		
Harper Co. RWD #04	-	6S		111	99	87	95	112	101		
Harper Co. RWD #05	-	6S		na	na	na	na	na	na		
Jewell Co. RWD #01	-	6S		273	149	168	121	348	212		
Kingman Co. RWD #01	-	6S		66	58	64	61	61	62		
Mitchell Co. RWD #02	-	6ML		193	245	250	323	183	239		
Osborne Co. RWD #01A	-	6S		559	972	1408	2543	2769	1650		
Osborne Co. RWD #02	-	6S		117	109	121	161	275	157		
Reno Co. RWD #01	-	6S		185	140	72	74	77	110		
Reno Co. RWD #03	-	6S		161	181	79	63	121	121		
Reno Co. RWD #04	-	6S		81	78	71	66	69	73		
Reno Co. RWD #08	-	6S		153	148	145	126	118	138		
Reno Co. WD #101	-	6S		119	118	103	109	101	110		
Rice Co. RWD #01	-	6ML		133	124	114	109	104	117		
Russell Co. RWD #01	-	6S		120	111	98	121	104	111		
Russell Co. RWD #02	-	6S		182	207	164	142	185	176		
Russell Co. RWD #03	-	6ML		153	125	91	na	112	120		
Russell Co. RWD #04	-	6S		258	158	248	270	297	246		
Smith Co. RWD #01	-	6S		162	204	271	268	240	229		
West Hills Water Company	-	6S		397	639	na	387	401	456		

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~~Kanopolis~~Table 2	~~49~~ 2	~~6S~~	~~92~~	~~87~~	~~70~~	~~76~~	~~75~~	~~80~~		
~~Norwich~~Consolidated Municipal Well (see Exhibit 33)	~~491~~Consolidated Quantity (acre-feet)	~~6S~~Consolidated Rate (gallons per minute)	~~128~~	~~123~~	~~90~~		~~111~~	~~90~~	~~108~~
~~Ellsworth Co. RWD #01 (Post Rock RWD)~~		~~6ML~~	~~174~~	~~175~~	~~170~~	~~171~~	~~93~~	~~157~~	
~~Mitchell Co. RWD #03~~		~~6ML~~	~~na~~	~~na~~	~~na~~	~~na~~	~~na~~	~~na~~	
~~Harper Co. RWD #01~~		~~6S~~	~~na~~	~~na~~	~~na~~	~~na~~	~~na~~	~~na~~	
~~Harper Co. RWD #02~~		~~6S~~	~~na~~	~~na~~	~~na~~	~~200~~	~~178~~	~~189~~	
A	752.0	945							
B	593.0	885							
C	365.8	1360							
D	591.3	1500							
E	414.0	1270							
F	285.0	1040							
G	368.0	1040							
H	608.0	765							
I	519.8	805							
J	540.0	700							
K	471.3	700							
L	377.9	950							
M	449.3	950							
N	421.4	1040							
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Appendix H:
Table 3

Table 3 (comprising several pages)								
A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
21,729 D1	615 325 275	A A A	945	945	-	NONE	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM
TOTAL RATE	1,215	-	-	945	-270	-	-	-
21,729 D2	720 360 635	A A A	945	945	- - -	945	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 945 GPM
TOTAL RATE	LIMIT TO 1,685	-	-	945	-740	-	-	-
21,730	795	C	1,040	795	-	NONE	1 WELL AT 795 GPM	1 WELL AT 795 GPM
TOTAL RATE	795	-	-	795	0	-	-	-

Table 3
(comprising several pages)

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
21,731	380	H	765	765	-	NONE	UP TO 5 WELLS WITH A TOTAL COMBINED RATE OF 765 GPM	UP TO 7 WELLS WITH A TOTAL COMBINED RATE OF 1,805 GPM
	245	H			-			
	525	H			-			
	735	H			-			
	605	H			-			
	625	G	1,040	1,040	-	1,040	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 1,040 GPM	
	450	G			-			
TOTAL RATE	3,565	-	-	1,805	-1,760	-	-	-
21732 D1	780	B	885	885	-	NONE	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 885 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 885 GPM
	715	B			-			
TOTAL RATE	1,495	-	-	885	-610	-	-	-
21,732 D2	885	B	885	885	-	885	1 WELL AT 885 GPM	1 WELL AT 885 GPM
TOTAL RATE	885	-	-	885	0	-	-	-
21,733	915	C	1,360	915	-	NONE	1 WELL AT 915 GPM	1 WELL AT 915 GPM
TOTAL RATE	915	-	-	915	0	-	-	-

Table 3 (comprising several pages)								
A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
21,734	1,035	E	1,270	1,035	-	NONE	1 WELL AT 1,035 GPM	UP TO 5 WELLS WITH A TOTAL COMBINED RATE OF 3,470 GPM
	1,500	D	1,500	1,500	-	NONE	UP TO 3 WELLS WITH A TOTAL COMBINED RATE OF 1,500 GPM	
	1,050	D			-			
	1,250	D			-			
	935	C	1,360	935	-	1,360	1 WELL AT 935 GPM	-
TOTAL RATE	LIMIT TO 4,800			3,470	-1,330			
21,841	890	F	1,040	890	-	NONE	1 WELL AT 890 GPM	1 WELL AT 890 GPM
TOTAL RATE	890	-	-	890	0	-	-	-
21,842	900	E	1,270	900	-	1,270	1 WELL AT 900 GPM	1 WELL AT 900 GPM
TOTAL RATE	900	-	-	900	0	-	-	-
22,325	805	I	805	805	-	NONE	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM
	530	I			-			
TOTAL RATE	LIMIT TO 1,000	-	-	805	-195	-	-	-
22,326	690	I	805	805	-	805	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM
	565	I			-			
TOTAL RATE	LIMIT TO 1,000	-	-	805	-195	-	-	-

Table 3 (comprising several pages)								
A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
22,327	475 490	I I	805	805	- -	805	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM	UP TO 2 WELLS WITH A TOTAL COMBINED RATE OF 805 GPM
TOTAL RATE	LIMIT TO 950	-	-	805	-145	-	-	-
22,329	570	I	700	570	-	NONE	1 WELL AT 570 GPM	1 WELL AT 570 GPM
TOTAL RATE	570	-	-	570	0	-	-	-
22,330	620	I	700	620	-	700	1 WELL AT 620 GPM	1 WELL AT 620 GPM
TOTAL RATE	620	-	-	620	0	-	-	-
22,331	640 645	I I	700	700	- -	700	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 1,000	-	-	700	-300	-	-	-
22,332	460 655	I I	700	700	- -	700	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH AT COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 980	-	-	700	-280	-	-	-
22,333	520	I	700	520	-	NONE	1 WELL AT 520 GPM	1 WELL AT 520 GPM
TOTAL RATE	520	-	-	520	0	-	-	-

Table 3
(comprising several pages)

A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
22,334	639 630	K K	700	700	- -	700	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 890	-	-	700	-190	-	-	-
22,335	680 555	K K	700	700	- -	700	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 700 GPM
TOTAL RATE	LIMIT TO 1,000	-	-	700	-300	-	-	-
22,338	950 785	L L	950	950	- -	NONE	UP TO 2 WELLS WITH A COMBINED RATE OF 950 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 950 GPM
TOTAL RATE	LIMIT TO 950	-	-	950	0	-	-	-
22,339	680	L	950	680	-	950	1 WELL AT 680 GPM	1 WELL AT 680 GPM
TOTAL RATE	680	-	-	680	0	-	-	-
22,340	950	M	950	950	-	NONE	1 WELL AT 950 GPM	1 WELL AT 950 GPM
TOTAL RATE	950	-	-	950	0	-	-	-
22,341	920	M	950	920	-	950	1 WELL AT 920 GPM	1 WELL AT 920 GPM
TOTAL RATE	920	-	-	920	0	-	-	-

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Table 3
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A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
22,342	630	M	950	630	-	950	1 WELL AT 630 GPM	1 WELL AT 630 GPM
TOTAL RATE	630	-	-	630	0	-	-	-
22,343	810	N	1,040	810	-	NONE	1 WELL AT 810 GPM	1 WELL AT 810 GPM
TOTAL RATE	810	-	-	810	0	-	-	-
22,345	820	N	1,040	820	-	1,040	1 WELL AT 820 GPM	1 WELL AT 820 GPM
TOTAL RATE	820	-	-	820	0	-	-	-
22,346	600	N	1,040	600	-	1,040	1 WELL AT 600 GPM	1 WELL AT 600 GPM
TOTAL RATE	600	-	-	600	0	-	-	-
27,760	670	K	700	670	-	700	1 WELL AT 670 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 1,470 GPM
	800	L	950	800	-	950	1 WELL AT 800 GPM	
TOTAL RATE	1,470	-	-	1,470	0	-	-	-
29,816	750	F	1,040	750	-	1,040	1 WELL AT 750 GPM	UP TO 2 WELLS WITH A COMBINED RATE OF 1,550 GPM
	800	E	1,270	800	-	1,270	1 WELL AT 800 GPM	
TOTAL RATE	1,550	-	-	1,550	0	-	-	-

Table 3 (comprising several pages)								
A	B	C	D	E	F	G	H	I
FILE NO.	AUTHORIZED (CERTIFIED) RATE PER IRRIGATION WELL (GPM)	MUNICIPAL WELL (TABLE 2)	MUNICIPAL WELL RATE (TABLE 2) (GPM)	RATE BY WELL AND BY RIGHT (GPM)	NET RATE REDUCTION BY RIGHT (GPM)	RATE LIMITATION BY WELL AND BY RIGHT (GPM)	POTENTIAL FUTURE CHANGES BY WELL	POTENTIAL FUTURE CHANGES BY RIGHT
30,083	1,000	M	950	455	-	950	1 WELL AT 455 GPM	1 WELL AT 455 GPM
TOTAL RATE	LIMIT TO 1,085, 455 add to 22,342	-	-	-545	-	-	-	
30,084	795	I	700	700	-	700	1 WELL AT 700 GPM	1 WELL AT 700 GPM
TOTAL RATE	795	-	-	700	-95	-	-	-

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~~G~~Appendix I:

R9 Ranch Water Use Report

Exhibits 1~~–~~–32:
Change Approvals

Exhibit 33:
The boundaries of the R9 Ranch, the approximate locations of the proposed municipal wells, and the areas excluded from any new municipal well (shown in gray~~).~~.)

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Exhibit 34:
~~R9 Ranch~~ Water Level & Water Quality Monitoring Plan ~~dated April 19, 2017~~for the R9 Ranch, February 2019