Before the Chief Engineer of the Kansas Department of Agriculture,
Division of Water Resources,
the Director of the Kansas Water Office, and
the Secretary of Health and Environment

In the matter of the application of the Cities of Hays and Russell, Kansas for approval to transfer water from Edwards County pursuant to the Kansas Water Transfer Act.

Pursuant to K.S.A. 82a-1501, *et seq*.

APPLICATION TO TRANSFER WATER FROM EDWARDS COUNTY KANSAS TO THE CITIES OF HAYS AND RUSSELL KANSAS

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Introduction

Hays and Russell (the "Cities") seek approval to transfer water from thirty water rights they own on the R9 Ranch in Edwards County to Schoenchen and then on to Hays and Russell for municipal use.

Hays purchased the Ranch, including its appurtenant groundwater rights, in January 1995 then sold an undivided interest in the Ranch to Russell. The Cities purchased the Ranch because their existing sources do not meet their current or long-term needs.

Nearly 7,000 acres in size, the R9 Ranch sits along the south side of the Arkansas River in southwestern Edwards County approximately 5 miles southwest of Kinsley. The Ranch is in the Middle Arkansas River subbasin except a few acres that cross over into the far western edge of the Rattlesnake Creek subbasin. The 30 water rights on the Ranch authorize irrigation from 57 wells, with a total appropriation of 8,039 acre-feet. The Cities are requesting authorization to transfer 7,625.5 acre-feet.

In support of this Transfer Application, the Cities provide the following information as required by K.A.R. 5-50-2.

(a) The names and mailing addresses of the applicants:

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c/o Toby Dougherty, City Manager
P.O. Box 490
Hays, KS 67601
(785) 628-7320
tdougherty@haysusa.com

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c/o Jon Quinday, City Manager
133 W. 8th Street
Russell, KS 67665
(785) 483-6311
quinday@russellcity.org

Please provide copies of any and all pleadings and correspondence to:

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Attorney for the City of Russell

(b) The maximum quantity of water proposed to be transferred in a calendar year and the proposed maximum diversion rate:

The maximum annual quantities to be transferred and the maximum rates of diversion from each of the water rights on the Ranch are set out in Table 1. The table provides the current maximum rates of diversion for each water right. The rates are the sum of the authorized rates for all of the wells authorized by each water right. In some cases the combined rate may be more than is needed for the new municipal wells.

Table 1								
DWR Water Right File No.	Circle[1]	Quantity Requested in Acre-Feet	Rate in Gallons Per Minute		File No.	Circle	Quantity Requested in Acre-Feet	Rate in Gallons Per Minute
21,729	7, 8, 9, 10	870.8	2900.0		22,333	39	57.5	520.0
21,730	1	203.8	795.0		22,334	27	162.9	890.0
21,731	2	222.9	1075.0		22,335	26	171.4	1000.0
21,731	3, 4, 5	768.1	2490.0		22,338	28	141.1	950.0
21,732	6, 11, 12	688.0	2380.0		22,339	27	142.6	680.0
21,733	13	219.5	915.0		22,340	31	140.4	950.0
21,734	16	226.4	861.0		22,341	30	190.4	920.0
21,734	18	148.0	777.8		22,342	36	100.8	630.0
21,734	14, 15, 17	522.5	3161.2		22,343	35	146.2	810.0
21,841	8A	195.0	890.0		22,345	38	184.6	820.0
21,842	11A	195.0	900.0		22,346	37	146.1	600.0
22,325	19	216.0	1000.0		27,760	32	142.6	800.0
22,326	20	196.7	1000.0		27,760	33	141.5	970.0
22,327	21	175.1	950.0		29,816	10A	97.5	800.0
22,329	24	150.5	570.0		29,816	9A	90.0	750.0
22,330	25	152.6	620.0		30,083	36	43.9	1000.0
22,331	22	209.0	1000.0		30,084	24	0.0	0.0
22,332	23	166.3	980.0		**Totals**		**7,625.50**	**36,355**

The rates and quantities to be changed from irrigation to municipal use are set out in a series of applications to change the points of diversion, type of use, and places of use for the above water rights and the cover letter transmitting them filed with the Chief Engineer on June 26, 2015 (the "Change Applications").[2]

Safe Yield

The Ranch will serve as a long-term and primary source of water. For that reason, the Cities cannot afford to withdraw more water from the Ranch than is recharged from precipitation and aquifer underflow. The Cities have requested a combined annual total of 7,625.5 acre-feet of water from the 30 water rights on the Ranch. The Cities request that the Hearing Panel approve the transfer of the individual quantities requested for each of the water rights but with limitations

[1] *See* Ex. 1, map showing the circle numbers and water right file numbers on the R9 Ranch.

[2] Exs. 2–32. For additional explanation regarding the calculations used to arrive at these rates and quantities, see Paragraph 13 of each of the Change Applications as well as Part V.G. (p. 26) of the Change Application Cover Letter.

based on the average sustainable yield using an objective method of determining the quantities that can be safely withdrawn under any given circumstance.

(c) The location of the proposed point or points of diversion:

The location and supplemental information about the proposed points of diversion are set out in paragraphs 7–10 of each of the Change Applications,[3] Part V.D. (p. 23) of the Change Application Cover Letter, and in Exs. D–M attached to the Cover Letter.[4]

(d) The location of the proposed point or points of use:

The initial place of use will be the City of Hays and its immediate vicinity and the City of Russell and its immediate vicinity as discussed in the Change Applications and the Cover Letter.[5]

In December 2014, the Cities entered into an *Interlocal Cooperation Agreement*, which states that Hays will finance the permitting and construction of the pipeline from the Ranch to Schoenchen and that Russell will have the right to purchase Ranch water from Hays.[6] For purposes of this Transfer Application, it is assumed that Russell will exercise the right to purchase water from Hays and, accordingly, approval of the Transfer Application will provide a long-term water supply to both of the applicants.

In addition, Hays has been in contact with other municipal users regarding their potential use of transferred water but has not sought or obtained commitments to purchase water. Victoria,

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[3] Exs. 3–32.

[4] Ex. 2.

[5] *See* paragraph 5 of the Change Applications; the maps of Hays and Russell attached to each of the Change Applications; and Part V.C. (p. 23) of the Cover Letter.

[6] Ex. 33. As stated in the Interlocal Cooperation Agreement, Glassman, Bird, Brown, and Powell, Hays, KS, and Foulston Siefkin LLP, Wichita, KS, represent the City of Hays. They have filed this Transfer Application on behalf of both Cities pursuant to the terms of the Interlocal Cooperation Agreement but do not represent the City of Russell. The Russell City Attorney, Kenneth Cole, is monitoring these proceedings for Russell.

La Crosse, Ellis, and Ellis County have all written letters of support.[7] However, there are numerous water users and suppliers in the region who are in need of water that will benefit from approval of this Transfer Application. For example, the City of Victoria is less than twelve miles from Hays and, like Hays and Russell, is in the midst of a longstanding struggle for adequate water as recently noted by several media outlets.[8]

(e) The proposed use made of the water:

Municipal use.

(f) Any economically and technologically feasible alternative source or sources of supply available to the applicants and to any other present or future users of the water proposed to be transferred. The water transfer application shall specify why this source of supply was selected over the alternative sources available:

After years of searching for alternative sources of water, it is now clear that the R9 Ranch is the only supply that will meet the Cities' long-term water needs with a realistic price tag. There simply are no other environmentally, economically, or technologically feasible water supply alternatives available. *See* Appendix A for a partial list of alternatives explored by the Cities during their decades-long search.[9]

The Cities own the Ranch and are the only "present or future users of the water proposed to be transferred." There are no other reasonably foreseeable future users of the water on the R9 Ranch.

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[7] Exs. 34–37.

[8] *See* Mike Corn, *Not Even a Trickle: Water Struggles Continue for Victoria Couple*, Hays Daily News, Oct. 11, 2015, Ex. 38; Tim Unruh, *Shunned at Victoria: McCarters Coming Up Dry in Quest for Safe Water*, Oct. 11, 2015, Ex. 39; Anna Auld, *Victoria Resident Disputes City Over Clean Water*, KWCH, Sept. 24, 2015, Ex. 40.

[9] The second section of K.A.R. 5-50-2(f) is not applicable because there are no other economically and technologically feasible alternative sources available to either of the Cities. Therefore, this Transfer Application is "complete" without information regarding the reasons other sources were not selected. Nevertheless, the Cities have provided descriptions of some of the alternative sources they have evaluated over the years.

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

As discussed in the Change Application Cover Letter,[10] the Cities have not prepared detailed plans and specifications at this time.[11] The proposed plan is set out in the Change Applications;[12] the Cover Letter and Exs. D–M attached to the Cover Letter; and documents prepared by Burns & McDonnell attached as Exhibits.[13]

(h) The estimated date for completion of the infrastructure and initial operation thereof:

The Cities are not presently able to predict how long it will take to complete the transfer infrastructure. There are a number of prerequisites that must be completed before the Cities can begin initial operations, including, for example:

- Final approval of the Change Applications with quantities and on terms that are acceptable to the Cities;
- Final approval of this Transfer Application with quantities and on terms that are acceptable to the Cities;
- Design of an affordable collection and transmission system;
- Permits and approvals for road, railroad, pipeline, and stream crossings;[14]
- The Cities plan to construct the pipeline in the public right-of-way but some additional easements and rights-of-way will be required;
- The design of the Phase 1 municipal wells, the collection system, the pipeline, and related infrastructure;[15]

[10] Ex. 2.

[11] Ex. 2 at Part V.D.

[12] Exs. 3–32.

[13] Exs. 1, 41, 41.1, 41.2, 41.3, 41.4, and 57.

[14] *See* paragraph (u), below.

[15] The Cities plan to construct the water-transfer project in phases. *See* the Cover Letter, Ex. 2, at Part IV, (p. 7) for a discussion of the planned phases.

- Approval of the wells, collection system, pumping station, and pipeline by KDHE;
- Project financing; and
- Bidding and construction of the project.

(i) That the benefits to the state if the transfer is approved outweigh the benefits to the state if the transfer is not approved:

Based on the language of the Transfer Act, the Cities are not required to demonstrate that the benefits to the state of approving the transfer outweigh the benefits to the state of disapproval.

The Cities understand that this Transfer Application must be approved by the Hearing Panel; the Transfer Act provides that: "No person shall make a water transfer in this state unless and until the transfer is approved pursuant to the provisions of this act."[16] The Cities further understand that their proposed transfer of more than 2,000 acre-feet of water per year farther than 35 miles meets the definition of a "water transfer,"[17] which triggers the Act and requires that the transfer be approved by the Panel.[18]

However, based on the plain language of the Act, K.S.A. 82a-1502(a)(1)'s statewide "benefits comparison" is only required when the transfer would cause a reduction in the "present or . . . reasonably foreseeable future beneficial uses of water" in the basin of origin. In other words, the comparison is only triggered when the State has a choice to allocate a particular source of water between competing users.[19] Because the Cities own the water rights from which

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

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

[18] K.S.A. 82a-1504(b).

[19] Note that the Water Transfer Act was passed in 1983 and amended in 1993 to stop Wichita and other communities in central Kansas from obtaining water rights for water stored in Milford Reservoir, which was and still remains unallocated. The State was in a position to determine, as a matter of public policy, whether that unallocated water should be made available to central

they seek this transfer, there are no present or future users in the area of origin with a realistic expectation that any water on the Ranch will ever be available to them. Thus, the threshold requirement is not met, and no K.S.A. 82a-1502(a) benefits comparison is required in this case.

(j) That the proposed transfer will not impair water reservation rights, vested rights, appropriation rights, or prior applications for permits to appropriate water:

Approval of the Transfer Application will not cause impairment. There are few water rights either south or north of the Ranch. The water rights on the Ranch have priority dates from 1974–1977, making them among the most senior water rights in the area.[20] In fact, since the water rights were approved in the mid-1970s, irrigation use on the R9 Ranch has never caused impairment, impairment complaints, or impairment concerns.

Moreover, no proposed point of diversion will be placed within one-half mile of any existing lawfully permitted well.[21] The amount of water the Cities are requesting to transfer will not exceed the quantity of water actually consumed. In addition, the Cities intend to develop the Ranch wellfield to reduce their vulnerability to drought and to operate it in a manner that will not exceed the long-term safe yield of the aquifer. There is no reason to believe that water rights of any kind will be impaired by the transfer.

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

Current Use.

The water rights are currently authorized for irrigation and will be changed to municipal use pursuant to the Change Applications that have been filed and are under consideration by the

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Kansas or reserved for future use in the Kansas River Basin. Because Hays and Russell own existing water rights, the state is not in the same position with respect to the water rights on the Ranch as it was with respect to unallocated storage in Milford Reservoir.

[20] *See* Ex. 41.3 (Map of the R9 Ranch and surrounding water rights showing dates of priority.).

[21] Cover Letter, Ex. 2, at PDF p. 27 and Exhibit I.

Chief Engineer.[22] The current status of the wells and the authorized places of use for the water rights on the Ranch are shown on the attached map.[23]

Minimum desirable streamflow requirements.

Minimum desirable streamflow requirements are not an issue. The most junior water right on the R9 Ranch, File 30,084, has a July 1, 1977 priority date.[24] Therefore, none of the water rights are subject to minimum desirable streamflow requirements.

(l) Any reasonably foreseeable future beneficial use of the water:

The only reasonably foreseeable beneficial use of the water rights on the Ranch is municipal unless this Transfer Application is denied, in which case the Cities will continue using the water rights for irrigation.[25]

Approval of this Transfer Application will not reduce the amount of water required to meet the "present or any reasonably foreseeable future beneficial use" of water in the source area since it is not "reasonably foreseeable" that the water rights owned by the Cities will ever be available to anyone in the area from which the water is to be taken. The requirements set out in K.S.A. 82a-1502(a)(1) and K.A.R. 5-50-2(i) are inapplicable.

(m) The economic, environmental, public health and welfare, and other impacts of approving or denying the transfer of water:

Economic Impacts

Approval of the Transfer Application on terms acceptable to the Cities will create direct economic benefits for families in Hays, Russell, and the region as well as for the numerous public and private institutions that call Hays and Russell home. The Cities' existing water

[22] Exs. 2–32.
[23] Ex. 41.4.
[24] *See* Ex. 32, at PDF p. 8.
[25] Ex. 2, at PDF pp. 3–4.

sources do not meet their present needs,[26] and everyone has sacrificed in some way during the decades-long struggle to find a sufficient water supply. Without adequate water, the Cities will wither, along with the significant economic benefit they provide to the entire State.

The City of Hays, Kansas

Incorporated in 1885 with an approximate 2014 population of 21,510, the City of Hays is the largest city in northwest Kansas and the county seat of Ellis County.[27] Hays currently has 181 full-time and 56 part-time city employees, including 33 sworn police officers and 24 full-time fire department employees providing continuous protection to Hays residents.[28]

Hays Unified School District No. 489 has an estimated 3,067 enrolled students served by five elementary schools, two middle schools, and one high school.[29] A branch of North Central Kansas Technical College is located in Hays and offers education in nursing, business, computer technology, business management, automotive mechanics, and residential electricity.[30] Fort Hays State University has a combined campus and online enrollment of approximately 13,825 students.[31] In 2014, the university generated approximately $108.8 million in direct expenditures in Hays.[32]

Hays is also home to the Kansas State University, Agricultural Research Center – Hays, with 9 faculty researchers and 24 full-time support staff.[33] The facility manages over 2,400 acres

[26] *Id.* at PDF pp. 8–23.
[27] Excerpt from 2015 Official Statement for Hays bond issue, at PDF p. 1 (2015), Ex. 42.
[28] *Id.*
[29] *Id.* at PDF p. 2.
[30] *Id.*
[31] *Id.*
[32] *Id.*
[33] http://www.wkarc.org/research-centers/hays.html.

of cropland and over 5,100 acres of rangeland in addition to a 268-acre campus that includes a 900-head feedlot and a modern feedmill.[34]

Hays has extensive medical resources serving its residents and the region, including the Hays Medical Center, one of the top rural medical centers in the United States. The Hays Medical Center provides health services to a population of more than 130,000, employs more than 1,200, and is home to DeBakey Heart Institute of Kansas.[35] Hays is also home to the Hays Pathology Lab, the Hearing Center, Fort Hays State University's Nurse Education Program, the Home Healthcare Services of Western Kansas, two nursing homes, Developmental Services of Northwest Kansas, and the High Plains Mental Health Center.

Hays is located on Interstate 70, a major east-west transportation route. It has daily freight service provided by several motor freight lines and the Union Pacific Railroad.[36] The Hays Regional Airport is located three miles southeast of town, covers 545 acres, and is 1,999 feet above mean sea level.[37] The Airport has two concrete runways. The longest is 6,501 feet by 100 feet. The other runway is 4,501 feet by 75 feet.[38] The Airport has commercial service supplied by United Express.[39]

Hays sponsors numerous indoor and outdoor activities, with 22 city parks, 300 acres of land with an 18-hole municipal golf course, picnic areas, ballfields, a sports complex, a jogging and fitness trail, a municipal swimming pool, and an aquatic park.[40]

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[34] Excerpt from 2015 Official Statement for Hays bond issue, at PDF p. 1 (2015), Ex. 42.
[35] *Id.* at PDF p. 1.
[36] *Id.*
[37] http://www.airnav.com/airport/KHYS
[38] *Id.*
[39] http://www.flyhays.com/Home.aspx.
[40] Excerpt from 2015 Official Statement for Hays bond issue, at PDF p. 1 (2015), Ex. 42.

Hays also hosts numerous cultural activities, including several historical and scientific museums; an arts council, which provides music, dance, theater, fine arts, and literature activities; and performances and exhibits sponsored by Fort Hays State University.[41] Hays is home to the Sternberg Museum of Natural History, which utilizes research, publications, collections, interpretive exhibits, and educational programs to advance an appreciation and understanding of Earth's natural history.

Hays is home to no less than 24 churches, more than 50 restaurants, 15 hotels, 10 car dealerships, 10 apartment complexes, and the Big Creek Crossing retail mall, which includes more than 25 retailers. The *Hays Daily News*, the *Hays Post*, the *Ellis Review*, and Fort Hays State University Tiger Media Network provide local and national newspaper and news media coverage.[42] These are just a small fraction of the organizations that exist in Hays.

Hays and Russell are centers of extensive governmental activity as well. Adequate water will create direct benefits to federal, state, and local governments. Properties owned or leased by public entities in Ellis County are appraised at over **$237 million**.[43]

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[41] *Id.*

[42] *Id. See also* http://tmn.fhsu.edu/.

[43] List of publicly owned and leased property in Ellis County, Ex. 42.1.

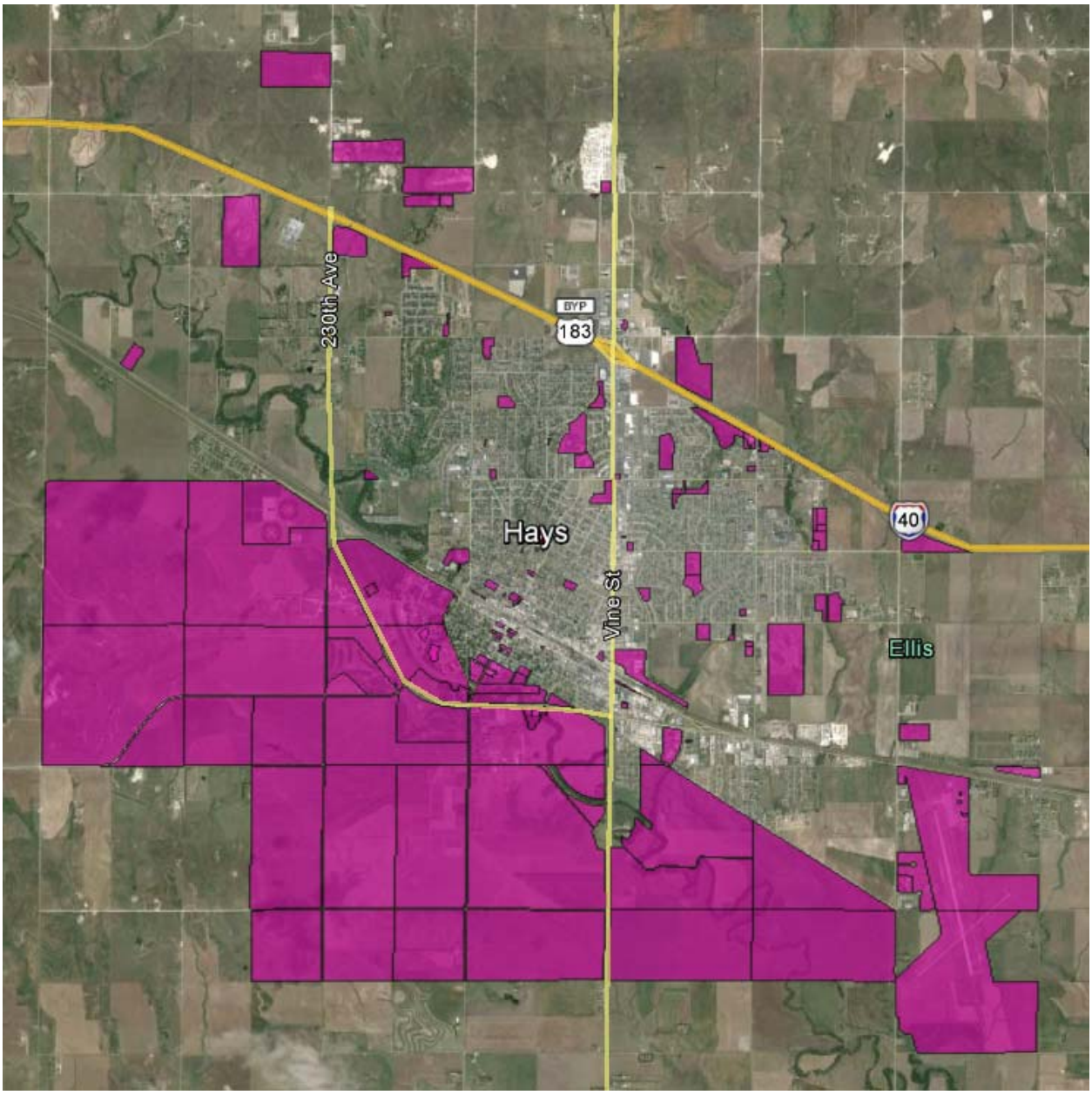

Figure 1. Publicly owned or leased real property in and around Hays.

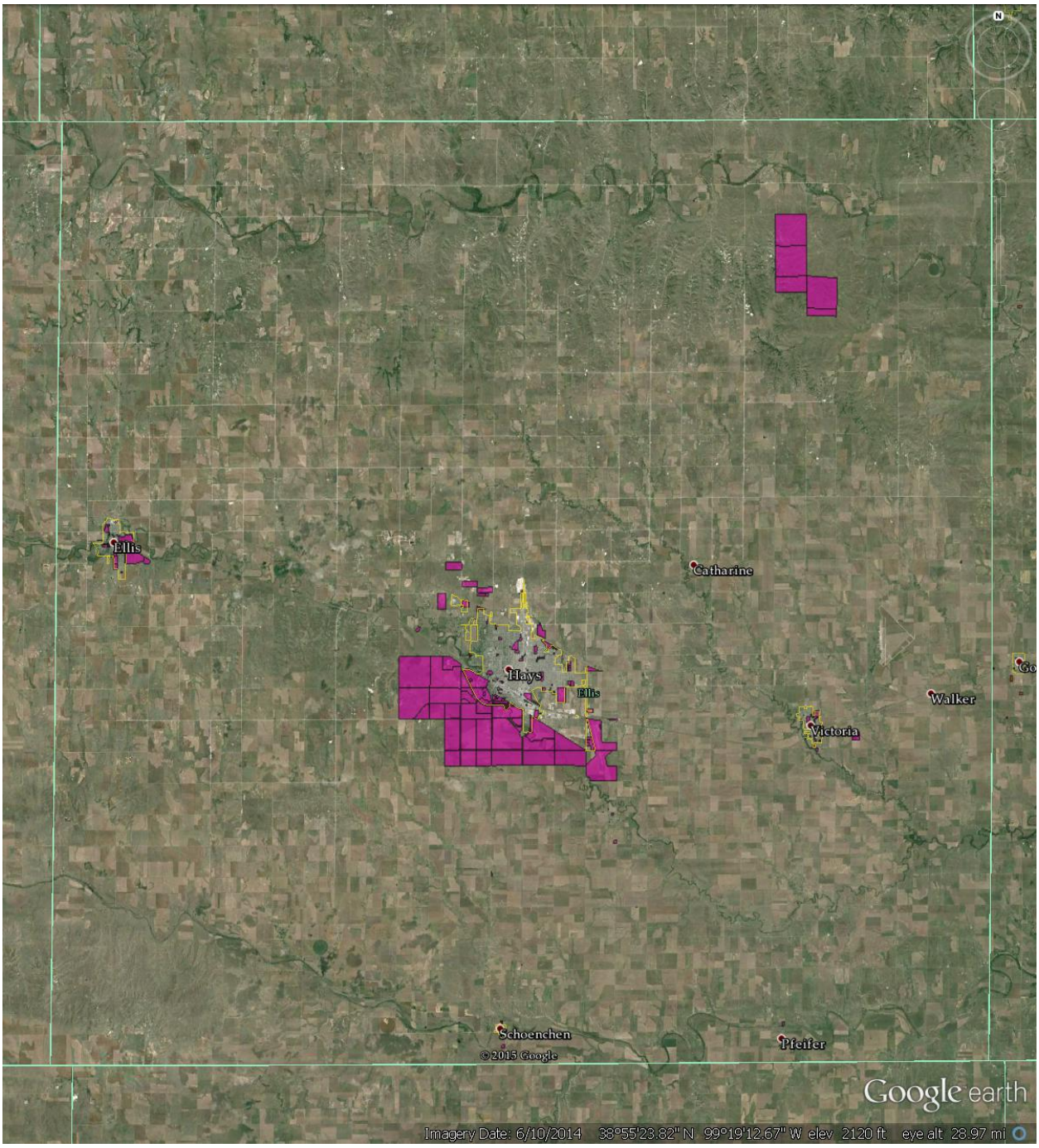

Figure 2. Publicly owned or leased real property in Ellis County.

City of Russell, Kansas

Incorporated in 1872, with an approximate 2014 population of 4,375, the City of Russell serves as the Russell County seat.[44]

Russell owns and operates its own electric, water, and sewer systems and provides solid waste collection and disposal services.[45] Russell is served by two major highways: I-70 and US-281 and offers rail service from Union Pacific Railroad.[46] The Russell Municipal Airport is a general aviation airport located two miles southeast of the city. It is 1,863 feet above mean sea level and has a 5,000-foot by 75-foot concrete runway.[47] Russell's police department consists of nine full-time and one part-time personnel, providing dispatch services for all of Russell County.[48]

Russell Unified School District No. 407 employs 173 people and provides public education to approximately 865 students through two elementary schools, one middle school, and one senior high school.[49] Russell has several vocational and technical junior colleges and universities within 100 miles, including North Central Kansas Technical College in Beloit; Barton County Community College in Great Bend; Fort Hays State University and North Central Kansas Vo-Tech, both in Hays.[50]

The Russell Regional Hospital is a full-service facility employing approximately 180 people and serves both Russell and the surrounding rural areas.[51]

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[44] Excerpt from 2015 Official Statement for Russell bond issue, at PDF p. 1 (2015), Ex. 43.
[45] *Id.*
[46] *Id.* at PDF p. 4.
[47] http://www.airnav.com/airport/KRSL.
[48] Excerpt from 2015 Official Statement for Russell bond issue, at PDF p. 1 (2015), Ex. 43.
[49] *Id.*
[50] *Id.*
[51] *Id.* at PDF p. 5.

Russell's public recreation facilities include: 160 acres of city parks; a 9-hole municipal golf course; a public swimming pool; numerous ball parks and playing fields; and a municipal library.[52] Russell has more than 10 restaurants, 9 churches, 25 retail stores, and 8 hotels.

Russell is also home to wheat gluten and ethanol manufacturing facilities located in the city's industrial park. Russell County is one of the leading petroleum-producing counties in the State.[53]

As noted above, adequate water will create direct benefits to federal, state, and local governments. Properties owned or leased by public entities in Russell County are appraised at nearly **$50 million**.[54]

[52] *Id.*
[53] *Id.*
[54] List of publicly owned and leased property in Russell County, Ex. 43.1.

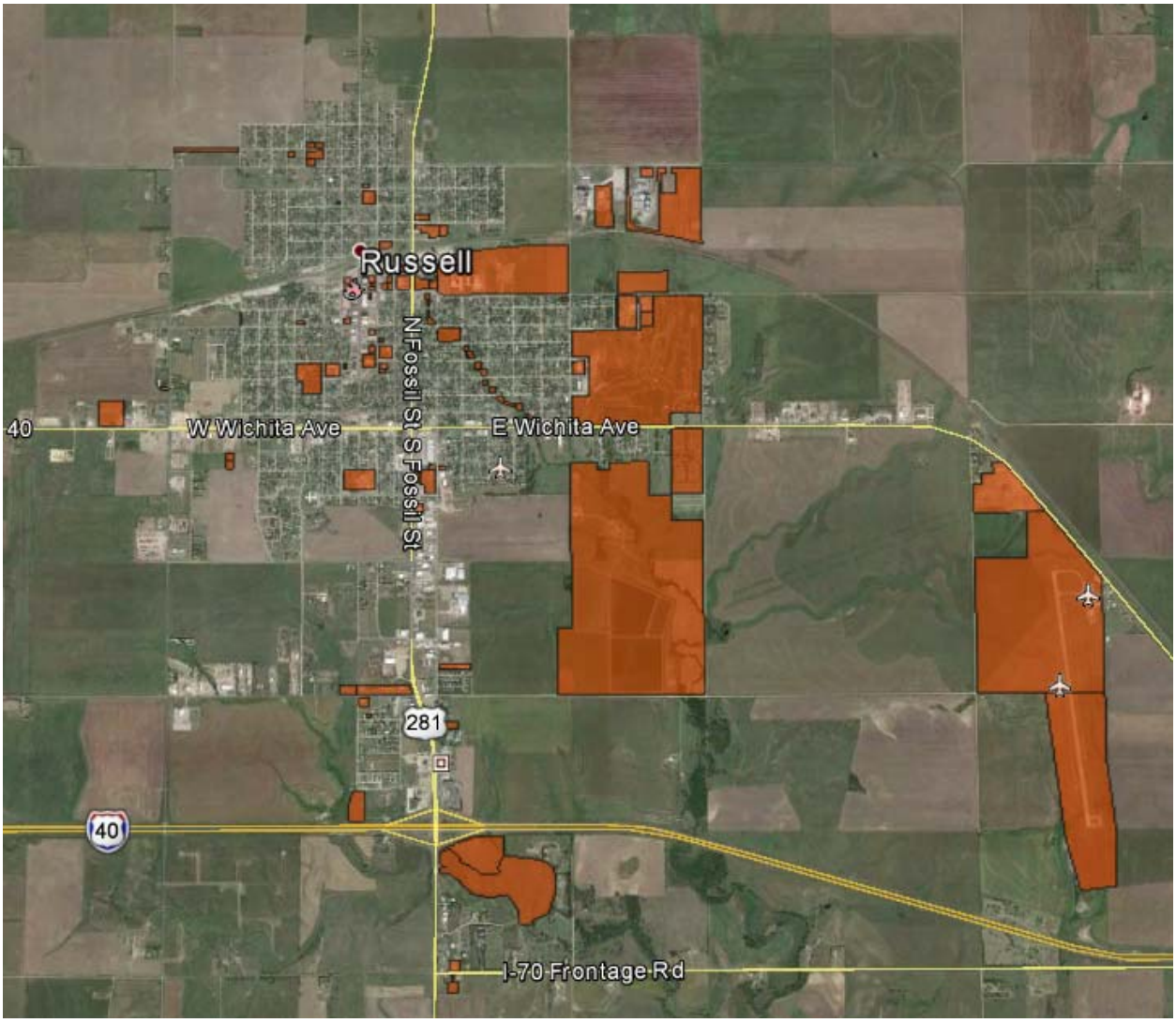

Figure 3. Publicly owned or leased real property in and around Russell.

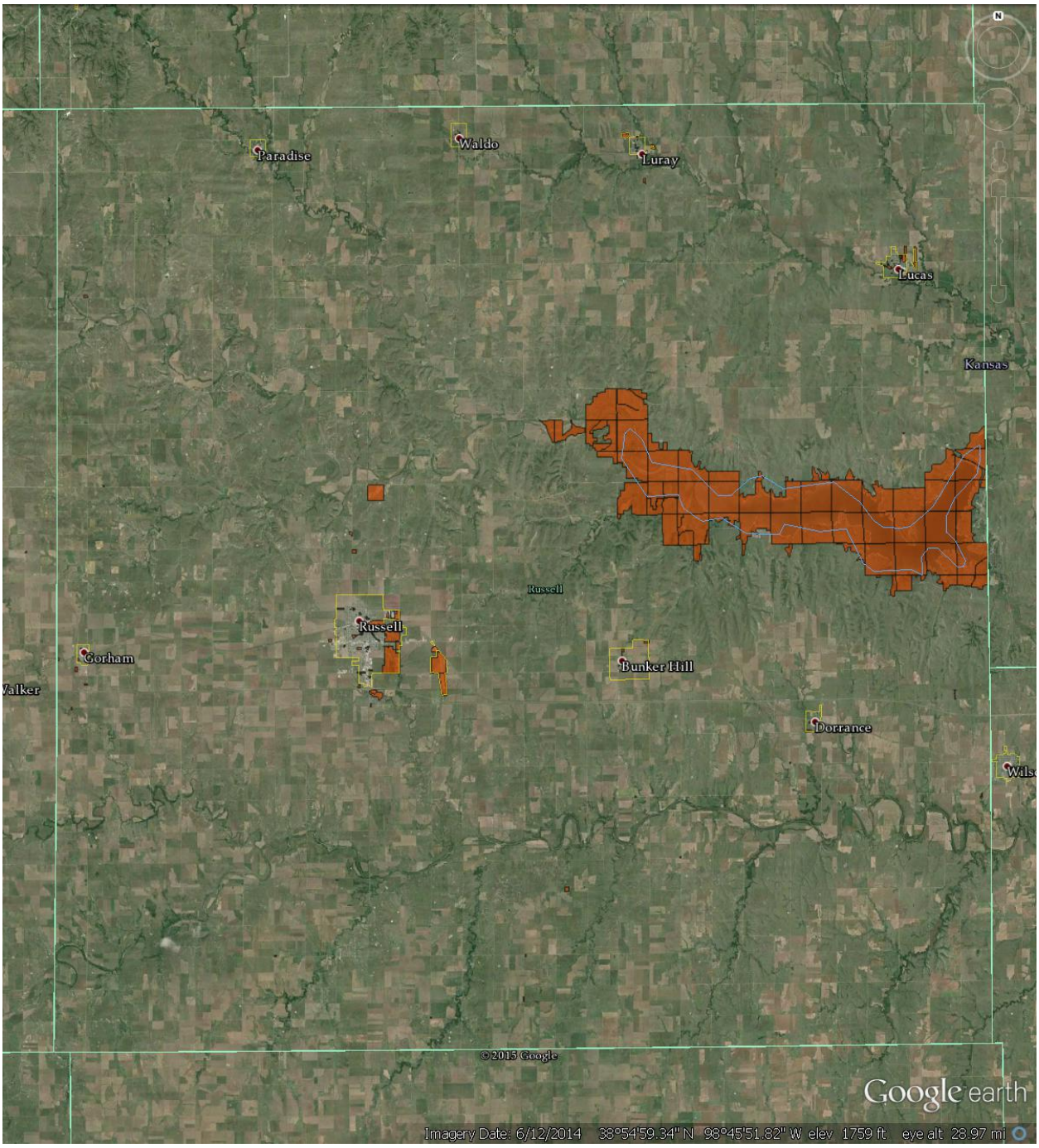

Figure 4. Publicly owned or leased property in Russell County.

State-Wide Economic Impacts

In 2014, Hays asked the Docking Institute of Public Affairs[55] at Fort Hays State University to evaluate the economic impact that Hays and Russell have on the surrounding regions and the Kansas economy as a whole. The 2014 Docking Economic Report uses well-established input-output models and economic location theory to measure the economic productivity and the impact of Hays and Russell by evaluating the Cities' land, labor, capital, and entrepreneurial resources compared with the larger region and statewide.[56] The report was intended to "aid government officials in determining whether the economic benefits of the region warrant administrative approval and the public resources needed to tap [the Ranch as an] alternate water source."[57]

The 2014 Docking Economic Report concludes that the "City of Hays is the economic center of a regional economy in northwestern Kansas that is important to the State of Kansas" and that Hays and Russell are "particularly important for stimulating and maintaining the health of the overall Kansas economy."[58]

This is not surprising for many reasons, including the enormous amount of state-owned infrastructure in Hays, including Fort Hays State University, the Kansas State Experiment Station, the State Highway Patrol Headquarters, branch offices of the Kansas Department of Transportation, the Kansas Department of Health and Environment, the Kansas Department of Wildlife, Parks and Tourism, the Division of Motor Vehicles, and the Department for Children

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[55] The primary mission of the Docking Institute "is to facilitate effective public policy decision making among governmental and non-profit entities." https://www.fhsu.edu/docking.

[56] *See* Docking Institute, *Economic Impact of the Hays and Russell Region On the Kansas Economy*, at 5–9 (Dec. 2014) (discussing methodology and data), Ex. 44.

[57] *Id.* at 5.

[58] *Id.* at 4.

and Families.[59] Kansas and the Federal government have placed their offices at the intersection of two busy highways—U.S. 183 and I-70, the transportation center for northwest Kansas.[60] Thousands of individuals live in Hays as a direct result of employment by the State and the federal government.

Hays and Russell's gross revenue product is currently about $1.8 billion and growing.[61] Using "trade pull factors," the 2014 Docking Economic Report measured the "retail trade dominance" of Ellis County and Hays compared to the surrounding counties.

> A value of 1 indicates that non-resident purchases [in the City] are equal to resident purchases outside of the area of residence. A value that is less than 1 indicates that non-resident purchases are less than resident purchases made outside the area of residence. And, a value that is greater than 1 indicates the non-resident purchases are greater than resident purchases made outside the area of residence.[62]

"For Hays the 2013 [trade pull factor] is 1.85 which shows that non-resident retail purchases in Hays are much larger than the retail purchases made outside of Hays by Hays residents."[63] In fact, Hays' trade pull factor is the second highest of all Kansas cities with more than 10,000 residents. And Ellis County's 1.70 trade pull factor is the highest of all counties in Kansas with populations greater than 25,000.[64]

The Report concludes that "loss of any vital resource [by the Hays and Russell area], the most vulnerable to which the area is susceptible being water, would cause a serious loss of

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[59] List of properties owned by the State and Federal Governments, Exs. 42.1, 43.1, and Figures 1–4, *supra*.

[60] Excerpt from 2015 Official Statement for Hays bond issue, at PDF p. 2 (2015), Ex. 42.

[61] Docking Institute, *Economic Impact of the Hays and Russell Region On the Kansas Economy*, at PDF p. 4 (Dec. 2014), Ex. 44.

[62] *Id.* at PDF p. 9.

[63] *Id.*

[64] *Id.* at PDF pp. 15–16.

population and industry and would have a significant negative effect on the entire Kansas economy."[65]

As the economic and social hub of the region, the population of Hays expands on a daily basis and in response to special events. According to a 2010 Population Report by the Docking Institute:

- There are 27,284 people in Hays on an average day, including Hays residents, non-Hays residents who travel to Hays for any reason from the nine-county region and those non-Hays residents who stay in local hotels/motels on an average day.

- There were 32,916 people in Hays on the day when the State 2-1A Football Championship was hosted in 2009. In all 6,742 people attended this event, including 1,110 Hays residents, 30 people who stayed in motels/hotels, 130 people who stayed with friends/family in Hays, and 5,472 people who came to Hays for the day.

- There were 29,983 people in Hays on the peak attendance day of the Hays City Shootout in 2009. In all, 4,838 people attended this event, including 2,139 Hays residents, 241 people who stayed in motels/hotels, 174 people who stayed with friends/family in Hays, and 2,284 people who came to Hays for the day.

- There were 37,192 people in Hays on the peak attendance day of the 3-2-1A State Wrestling Tournament in 2010. In all, 12,097 people attended this event, including 830 Hays residents, 5,456 people who stayed in motels/hotels, 237 people who stayed with friends/family in Hays, and 5,574 people who came to Hays for the day.

- There were 35,614 people in Hays on the peak attendance day of the 1A State Basketball Tournament in 2010. In all, 9,476 people attended this event, including 1,146 Hays residents, 1,172 people who stayed in motels/hotels, 150 people who stayed with friends/family in Hays, and 7,008 people who came to Hays for the day.

- There were 32,319 people in Hays on the peak attendance day of the Special Olympics Basketball & Cheerleading Tournament in 2010. In all, 7,855 people attended this event, including 1,461 Hays residents, 4,285 people who stayed in motels/hotels, 332 people who stayed with friends/family in Hays, and 1,777 people who came to Hays for the day.

- On an average day, 5,512 people travel to Hays from the nine-county region for any reason.

[65] *Id.* at PDF p. 14.

- On an average day, 3,580 people travel to Hays from the nine-county region for shopping or retail trade.

- On an average day, 699 people travel to Hays from the nine-county region to see a doctor, dentist, hospital, or other health service provider.

- On an average day, 1,605 people travel to Hays from the nine-county region to work.

- On an average day, 619 people travel from the nine-county region to attend school in Hays.

- On an average day, 1,359 visitors stay in hotels and motels in Hays.[66]

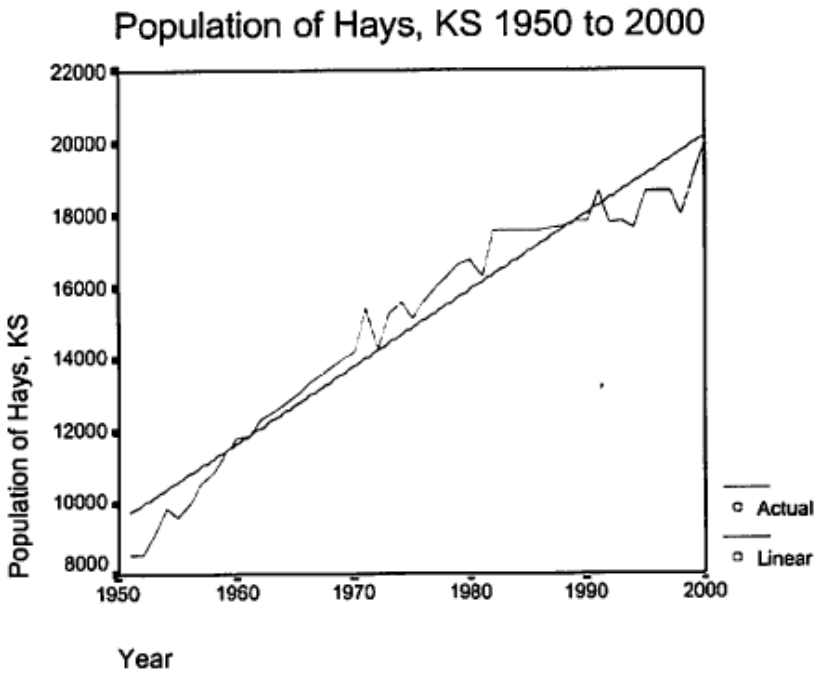
Hays' water supply problems have already adversely affected its growth. As Joe Airstrup, Ph.D., of the Docking Institute explained in a 2002 report to the Division of Water Resources:

> The availability of water has been and will be a key component of population growth for the cities of Hays and Russell. Chart Number 1 [below] shows that the drought in the early 1990's and the resulting restriction of water supplies are directly associated with the population of Hays dropping below its linear projection. For Russell, being able to purchase water from the [Public wholesale water supply District No. 15] is a key element of its effort to rebound economically through luring value-added agricultural industries.[67]

[66] Docking Institute, *Estimation of Average Daily Population and Peak Population Levels During Special Events in Hays, Kansas*, at PDF pp. 7–8 (May 2010), Ex. 45.

[67] Docking Institute, *Memo Regarding Planning Horizon, Projections of Population and Industrial Growth in Hays, Industrial Demand in Russell, and the Potential for Partnership with other Water Districts and Incorporated Cities*, at pp. 1–2 (Jan. 9, 2002), Ex. 46.

Chart Number 1



Economic growth in Hays and Russell benefits the entire state. Dr. Airstrup's 2002 Report further elaborated on the benefits of obtaining a long-term water source for the Cities through the Public Wholesale Water Supply District No. 15:

> **Economic growth in these cities benefits the state as a whole**. When cities like Hays and Russell are thriving, tax revenues collected by the state increase and the large investments the state has made for infrastructure to support these communities pay dividends. Indeed, this is the reason that the policies of other state agencies like the Kansas Department of Commerce and Housing and federal agencies like Economic Development Administration have specifically focused on economic development in small to medium sized Kansas communities. The District seeks a relatively small quantities of water when compared to irrigation water rights and yet this appropriation will have a large and direct impact on economic development in Hays, Russell, and the surrounding communities. This growth will, in turn, benefit the state as a whole.[68]

[68] *Id.* at 2 (emphasis added).

Moreover, the potential "third-party effects," *i.e.*, the economic impacts of the water transfer on the area directly surrounding the Ranch, primarily Edwards County, will be minimal, and the statewide detrimental impacts of the transfer will be negligible. Studies have long shown "that direct and indirect economic impacts of water transfers on the area of origin are generally small from the perspective of a state's economy,"[69] which was confirmed for the Cities' proposed water transfer in this case. In 1996, Eric D. Madden[70] performed an in-depth evaluation of the potential hydrologic and economic third-party effects in Edwards County that would result from a transfer to Hays and Russell.[71]

Mr. Madden found that "Edwards County would probably not experience any significant economic impacts from the proposed water transfer immediately."[72] Retiring the Ranch from agricultural production would result in a 0.17% decrease in Edwards County's total personal income, and a 1.6% reduction in its total agricultural acreage.[73] Further, because the Ranch does not utilize any farm management, crop, or commercial soil services from within Edwards County; and purchases all of its seeds, fertilizers, natural gas, pesticides, chemicals, and irrigation parts and services from outside Edwards County, loss of such commercial activity

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[69] Bonnie G. Colby, *Economic Impacts of Water Law—State Law and Water Market Development in the Southwest*, 28 Nat. Resources J. 721, 737 (Fall 1988).

[70] Mr. Madden submitted the report in partial fulfillment of the requirements for his Bachelors in Environmental Studies degree from the University of Kansas. The report was approved on June 5, 1996, by Stanford L. Loeb, who is now Acting Director of KU's Environmental Studies Program. Mr. Madden went on to graduate with honors from the University of Kansas (B.A. in English and Environmental Policy, with honors) and from the KU School of Law, where he was Order of the Coif and Editor-in-Chief, of the Kansas Law Review. He is currently a partner at Reid Collins & Tsai LLP, in Dallas, Texas. *See* http://www.rctlegal.com/person/eric-d-madden/.

[71] Eric D. Madden, *An Evaluation of Potential Hydrologic and Economic Third Party Effects in Edwards County, Kansas, Resulting from the Hays-Russell Water Transfer Proposal* (June 5, 1996), Ex. 47.

[72] *Id.* at PDF p. 42.

[73] *Id.* at PDF pp. 37–38.

would have no effect on the local economy.[74] Mr. Madden provided the following summary of the potential economic impacts of the water transfer, which assumes that no further economic development will occur on the Ranch after it is taken out of agricultural production:[75]

Table 12: Potential Annual Economic Impacts of the Proposed Water Transfer on Edwards County, Kansas

Impact Type	Loss	Loss as % of county total
Direct Impacts		
Employment	6 jobs	0.4%
Income	$110,000-$140,000	0.13-0.17%
Agricultural acreage	6,742 acres (total)	1.6%
	4,719 acres (corn)	8.2%
	674 acres (alfalfa)	3.3%
	674 acres (wheat)	0.6%
	674 acres (soy beans)	4.1%
Indirect Impacts		
Diesel and oil purchases	$57,846	1.7%
Induced Impacts		
Income spent in county economy	$50,000-$80,000	0.13-0.17%
Revenue Impacts		
Property tax revenue	$7,730.58	0.05% -
Sales tax revenue	$1,294.76	1.2%

An adequate water supply for Hays and Russell has far greater economic value than continuing to use the water on the Ranch for irrigation. As of August 2015, over 83% of all water use in Kansas was for irrigation.[76] In Groundwater Management District No. 5, where Edwards County is located, irrigation use makes up an even larger percentage of total water use, accounting for 98% of all metered water.[77] In 2001, the Docking Institute issued a report

[74] *Id.* at PDF p. 37.

[75] *Id.* at PDF p. 43.

[76] Kansas Dep't of Ag., *Fact Sheet, Water Use Data Collection and Use* (Aug. 2015), Ex. 48.

[77] Kansas Dep't of Ag., Excerpt from *Kansas Irrigation Water Use 2012 Report*, at PDF p. 5 (2012), Ex. 49.

measuring "the economic impact of an acre-foot of water on the economy of Southwest Kansas."[78] The report concluded that, in 1998 dollars, "the direct impact" of "an acre foot of Ogallala Aquifer water used for irrigation" was "about $18 per acre foot."[79]

In contrast, the direct economic impact of an acre-foot of water for municipal use was about $460 in 2001 dollars.[80]

Not only do the ongoing water-supply problems in Hays and Russell pose significant threats to the statewide economy, but any negative economic impact of the proposed water transfer will be negligible.

Hays and Russell have already experienced serious population and industry impacts because of their longstanding struggle with inadequate water supplies. These impacts include severe water-use restrictions incorporated into the Cities' rate ordinances and water conservation plans.[81] For example, already in the mid-1980s, Hays' water supply concerns and resulting conservation measures led it to ask the Division of Water Resources to initiate proceedings to designate an intensive groundwater use control area ("IGUCA") in the City to address the use of private water wells for outside discretionary activities.[82] In July 1985, the Chief Engineer granted Hays' request, requiring registration of all domestic wells and reserving the right to ban the use

[78] Docking Institute, *The Value of Ogallala Aquifer Water in Southwest Kansas*, at PDF p. 4 (2001), Ex. 50.

[79] *Id.* at PDF p. 44.

[80] *Id.*

[81] Including, for example, prohibitions on new connections to the potable water system, benefit car washes, washing houses, new lawns, and outdoor water use during the daylight hours. *See* Letter from Toby Dougherty, City Manager of Hays, to David Barfield (Mar. 28, 2014), Ex. 51.

[82] *In re the Designation of an Intensive Groundwater Use Control Area in Hays, Kansas, and the Immediate Area* (July 25, 1985), Ex. 52.

of such wells for watering outdoor vegetation from 12:00 p.m.–7:00 p.m. daily from June 1 through September 30 of each year.[83]

But the Cities' exemplary conservation efforts, which have been partially documented in the media,[84] have come at great cost to the Cities and the region.

> [T]he availability of water has been a key component of population growth in Western Kansas. Western Kansas counties that used a significant amount of water from the Ogallala had a rate of population change between 1980 and 1990 that was 10% greater than in counties where water was scarce. Likewise, water rich counties had a rate of population change that was 4% greater than others between 1990 and 2000.[85]

The City of Russell and its citizens have responded to warnings about their water supply and have significantly reduced water consumption. The industrial sector was able to reduce water consumption by 63% over 10 years.[86] The residential/commercial sector was able to reduce their water consumption by 30% over the same time period.[87] In fact, in 2013, Russell's total water consumption dropped by 22 percent over the previous five years, with more than one-third of its residents using rain barrels to collect and reuse rainwater.[88]

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[83] *Id.* at PDF p. 8.

[84] Rick Montgomery, *Capturing Every Drop: Russell, Kan., Learns to Live with Drought*, The Kansas City Star (June 1, 2014), http://www.kansascity.com/news/state/kansas/article446882/Capturing-every-drop-Russell-Kan.-learns-to-live-with-drought.html. *See also Kansas Community Launches Educational Campaign to Help Promote Water Conservation*, AM Conservation Group (Jan. 20, 2014), http://www.amconservationgroup.com/blog/kansas-community-launches-educational-campaign-to-help-promote-water-conservation; Associated Press, *Russell seeks to conserve water* (July 11, 2012), http://cjonline.com/news/2012-07-11/russell-seeks-conserve-water.

[85] Docking Institute, *Memo Regarding Planning Horizon, Projections of Population and Industrial Growth in Hays, Industrial Demand in Russell, and the Potential for Partnership with other Water Districts and Incorporated Cities*, at pp. 1–2 (Jan. 9, 2002), Ex. 46.

[86] Bartlett & West, Inc., *Water Supply Study for the City of Russell, Kansas*, at PDF p. 9 (Dec. 2014), Ex. 53.

[87] *Id.*

[88] Montgomery, *supra* note 84.

Russell's governing body recognizes the importance and scarcity of water in this region. In addition to investing in infrastructure, Russell looked to its neighbors to the west and their conservation efforts. In 2013, the City of Russell began offering free low-flow showerheads to its customers and implemented a new water-conservation program in middle school science classes.[89] In 2014, Russell implemented a water-conservation rebate program, which promoted the purchase and proper installation of high-efficiency toilets.[90]

Hays has also taken significant steps to reduce water consumption over the years. As noted by a former Hays City Manager, Hannes Zacharias, in 1994, Hays is one of the "stingiest water users in the state, per capita."[91] In March 1991, the Ellis County Coalition for Economic Development published the "Hays Water Survey," to implement conservation measures that would help address Hays' long-term "problem of an adequate supply of potable water."[92] By 1994, Hays routinely rationed water during the spring and summer; distributed limited-flow showerheads to water customers; offered incentives for high-efficiency toilets; and implemented an effluent reuse plan that ensured that low quality water was used where possible;[93] prohibited

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[89] http://www.amconservationgroup.com/blog/kansas-community-launches-educational-campaign-to-help-promote-water-conservation.

[90] Montgomery, *supra* note 84.

[91] Mike Berry, *Hays Covets Supply of Water to the South*, Wichita Eagle (Sept. 10, 1994), Ex. 54.

[92] Ellis County Coalition for Economic Development, *Hays Water Survey*, at PDF p. 3 (Mar. 1991), Ex. 55.

[93] Beginning in the early 1990's, Hays began using treated effluent from its municipal sewage treatment plant for irrigation. The initial investment included a holding basin; pump station; and 10-inch, 1.5-mile pipeline to the Fort Hays Municipal Golf Course. Over the years, several baseball, softball, and soccer fields were added to the system. In the mid 1990's, the City began irrigating Larks Park (home of Fort Hays State University baseball and the Hays Larks) with effluent.

In 2011, this system was expanded when the Bickle/Schmidt Sports Complex was constructed. The pipeline was extended one mile to the west to serve that complex. A pond at the Fort Hays

washing cars and watering lawns between noon and 7:00 p.m.; among other water-use restrictions on City residents. As a result, Hays decreased water use by 47% between 1988 and 1994.[94]

Hays' aggressive water conservation program has expanded since 1994. Hays is the only city in Kansas to adopt the green plumbing code and implement landscaping requirements that significantly limit the amount of irrigated area and type of vegetation compared to landscaping routinely grown and irrigated in other Kansas communities. To keep consumption rates low, Hays has enacted stringent water-conservation measures, mandated the use of water-saving devices, and implemented a program that pays part of homeowners' cost to purchase and install these devices. Hays budgets over $200,000 annually to fund water-conservation programs including: toilet, urinal, and washing machine rebates; a low-flow showerhead giveaway program; commercial/industrial retrofits; and the only cash-for-grass program east of the Rocky Mountains and north of Texas that pays homeowners to remove irrigated cool-season turf and replace with more water efficient landscaping. As a result, Hays' average gallons per capita per day water usage is significantly less than comparable Kansas cities, as discussed at length in Part B.6 (pp. 13–23) of the cover letter accompanying the Cities' Change Applications.

In addition, both Hays and Russell have water-rate ordinances with increasing block structures.[95] While the first gallon of water is relatively inexpensive, as consumption increases,

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Municipal Golf Course was enlarged to create a reservoir effluent and a second pumping station was installed. The golf course and sports complex are now irrigation from this reservoir.
As of 2015, Hays irrigates 145 acres with treated effluent, which averages 20% of the total effluent produced on an annual basis.

[94] Madden, *supra* note 71, at PDF p. 14.

[95] Public Wholesale Water Supply District No. 15, *Water Conservation Plan*, at PDF p. 3 (Jan. 2002), Ex. 56.

so does the incremental rate. This approach has dramatically decreased the per capita water use by residents.

Hays and Russell residents have embraced these conservation efforts and take pride in their accomplishments, but carrying the banner as the statewide leaders in conservation has created a widely held perception that the Cities lack water. They are at the effective limits of conservation for this part of the country. If the Cities push even harder by adopting some of the draconian tactics used by cities like Las Vegas and Phoenix, it would thrust them even further from their peer communities in Kansas, which would further repel private and commercial investment.

Hays is the economic engine of Northwest Kansas; its continued growth and economic viability are crucial to the entire state. This is only possible if Hays has access to a water supply consistent with the reasonable expectations of citizens in other Kansas communities.

Environmental Impacts

With the exception of above-ground structural facilities, such as a pump station and wellhouses on the Ranch, all areas disturbed during construction will be returned to their original condition. The planning and design of the pipeline and related structures will avoid environmentally sensitive areas and minimize intrusion into the natural setting.

The Cities have already begun the process of converting the Ranch back to native grass. Twenty-seven of the circles on the Ranch are already converted, and the remaining circles are on track for conversion to grass by 2017.[96]

[96] *See* Farmer Nat'l Co. map showing conversion of Ranch back to grassland, Ex. 57.

Public Health and Welfare Impacts

Approving the proposed transfer will have obvious and significant positive impacts on the public health and welfare of the Cities, their surrounding areas, and on the state as a whole—and minimal negative impacts.

Kansas law does not directly define the phrase "public health and welfare." Use of the phrase throughout state and federal law indicate that the term has broad applicability and general meaning,[97] but, at a minimum, the term refers to conditions that directly impact human, animal, and plant health.[98]

An adequate water supply is an essential element of the state's public health and welfare. In 2013, Governor Brownback "issued a call to action to his Administration to develop a 50-year Vision for the Future of Water in Kansas."[99] In a joint effort, the Kansas Department of Agriculture–Division of Water Resources and the Kansas Water Office formed a "Water Vision Team" that developed and published a document titled *A Long-Term Vision for the Future of Water Supply in Kansas*, which was "based upon input from the citizens of Kansas."[100] "The Vision attempts to make clear that water is necessary for human health and welfare as well as

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[97] *See* Bradley M. Taub, *Why Bother Calling Patents Property?*, 6 J. Marshall Rev. Intell. Prop. L. 151, 172 (Fall 2006) (discussing, in the context of patent law, the broad meaning given to the term "public health and welfare") (citations omitted).

[98] *See, e.g.*, *Massachusetts v. EPA*, 549 U.S. 497, 559 (2007) (distinguishing the "public health and welfare problems" related to "air pollution," in the "lower stratosphere," from "other greenhouse gases in the upper reaches of the atmosphere," and concluding that the EPA's regulation of gases in the "upper reaches of the atmosphere . . . is not akin to regulating the concentration of some substance that is ***polluting*** the ***air***") (emphasis added).

[99] *A Long-Term Vision for the Future of Water Supply in Kansas*, at 4 (Jan. 2015), Ex. 58.

[100] *Id.* at 1.

environmental stewardship and our economic well-being."[101] And the Vision specifically sought to "allow for the transfer of water supplies between basins where feasible and cost effective."[102]

(n) Any and all measures the applicant has taken to preserve the quality and remediate any contamination of water currently available for use by the applicant:

There have been no known opportunities to utilize contaminated water in the City of Russell.

In March 2001, a groundwater extraction well was installed near east 17th and Montgomery Streets in Hays. This well feeds into a packed tower air stripper and then into the public water supply. Remediated water has been used in Hays since that time.

(o) The provisions of a revised management program adopted by a groundwater management district that are applicable to the proposed transfer whenever any of the proposed points of diversion are located within a groundwater management district:

The R9 Ranch is within the boundaries of the Big Bend Groundwater Management District No. 5. GMD5 regulations are found at K.A.R. 5-25-1 *et seq*.

(p) Whether or not the applicant, and any entity to be supplied water by the applicant, have adopted and implemented conservation plans and practices that fulfill the following requirements:

(1) Are consistent with guidelines developed and maintained by the Kansas water office, pursuant to K.S.A. 74-2608 and its amendments:

Both Hays and Russell have adopted and implemented water conservation plans that have been reviewed and approved by the Kansas Water Office, which are attached.[103]

(2) Have been in effect for not less than 12 consecutive months immediately before the filing of this water Transfer Application:

The adopted conservation plans have been in effect for many years in both communities.

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[101] *Id.* at 9.

[102] *Id.* at 43.

[103] Exs. 59–60.

(3) Provide for a rate structure that encourages efficient use of water and results in conservation and wise, responsible use of water, if the transfer is for use by a public water supply system:

Both Hays and Russell have rate structures that encourage conservation.[104] *See also,* all Hays and Russell ordinances related to water supply and conservation.[105]

(q) The effectiveness of conservation plans and practices that have been adopted and implemented by the applicant and any other entities to be supplied water by the applicant:

See paragraph (m) above.

(r) If applicable, population projections for any public water supply system that will be supplied by the water transfer, and the basis for those projections:

Population projections are not applicable for this Transfer Application.[106] The Kansas Water Appropriation Act states that "[a]ppropriation rights in excess of the reasonable needs of the appropriators shall not be allowed."[107] DWR's 20-year planning horizon is designed around the "reasonable needs" of municipal users.[108] Indeed, DWR—and Kansas courts—have long recognized that "reasonableness" is fact and situation specific.

Approval of this Transfer Application at the maximum quantity of water available from the R9 Ranch is necessary for a stable long-term water supply for the Cities and surrounding areas. This project is expected to have a design life of at least 50 years and to be productive for

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[104] Exs. 61–64.

[105] Exs. 65–66.

[106] The transfer regulations state that a complete application requires population projections for any public water supply system that will be supplied by the water transfer "if applicable." K.A.R. 5-50-2(r). There is no other mention of "population" in the transfer act, K.S.A. 82a-1501 through 82a-1508, or in the transfer regulations, K.A.R. 5-50-1–K.A.R. 5-50-8. Thus there is no guidance to determine whether population projections are "applicable." For this, and the other reasons set out in the paragraph (r) of this Transfer Application, the Cities respectfully request that the Chief Engineer waive the requirement that the Cities provide population projections in order to deem this Transfer Application complete.

[107] K.S.A. 82a-707(e).

[108] This is likely because DWR recognizes that the approach is useful in some, but not all, circumstances.

even longer. Individual components and the project as a whole will be maintained, repaired, and replaced as needed so that, once approved, water will be supplied to the Cities and the region in perpetuity.

Twenty-year population projections are speculative[109] and projecting population growth for longer periods is even less reliable. Projections of populations that will be served and benefited from this transfer are further complicated because the identity of all of the public water suppliers that will use water over the life of the project are unknown. There are numerous potential users in the region including other cities, new and existing industries, new and existing rural water districts, and other public water suppliers.[110] The existing population that could be served is unknown, making future projections impossible.

DWR's 20-year approach is appropriate for most municipal users across the State, principally because most users are close to sufficient quantities of water to meet their short, medium, and long-term needs. For example, most communities in western Kansas overlie the Ogallala Aquifer, which means that irrigation rights are generally available nearby and can be acquired and converted to municipal use.[111]

In eastern Kansas, a range of possible options are available, including relatively abundant surface water in multiple reservoirs, sufficient precipitation, the acquisition of existing rights, the KWO's Water Marketing Program, Water Assurance Districts, and PWWSDs.[112]

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[109] *See, e.g.*, K.A.R. 5-8-6 (b) requiring a 10-year review of projected water needs for municipal use that are based on 20-year projections. *See also Instructions for Completing Applications for Permits to Appropriate Water* (Rev. June 29, 2009), Ex. 67, and *Municipal (Public Water Supply) Application Supplemental Information Sheet* (Rev. Aug. 15, 2002), Ex. 68.

[110] There are several existing Rural Water Districts in Trego, Ellis, Russell, and Rush Counties that are potential water customers. Exs. 69–72. In addition, the availability of water could spawn additional Rural Water Districts or other public water suppliers.

[111] *See* Ex. 2, Cover Letter, Ex. A.

[112] *See* Ex. 73.

In stark contrast, Hays and Russell and other suppliers in the area must look far afield to find a reliable source of water. The Cities have considered numerous alternative water sources but extensive hydrology and engineering studies have shown these alternatives are unworkable.[113]

Moreover, the policy bases for the traditional 20-year limit either no longer exist at all or have significantly eroded—particularly in Groundwater Management District No. 5. The prior appropriation doctrine as adopted in Kansas in 1945, has four key tenets.

- Priority of right—first in time is first in right;[114]
- All water may be appropriated, so long as it is used for beneficial purposes;[115]
- Water rights in excess of reasonable needs are not allowed;[116] and
- Water rights that are no longer put to beneficial use must be relinquished to allow reappropriation by others.[117]

Two key developments have eroded the impact of these doctrines as they relate to the traditional 20-year planning horizon for determining reasonable quantities for municipal use. First, DWR has closed many areas of the State, including the Ranch and surrounding areas, to new appropriations.[118] Put simply, no new water rights will ever be approved in the area around the Ranch.

Second, in 2010, the legislature revised K.S.A. 82a-718, fundamentally altering a "basic premise" of the Kansas version of the prior appropriation doctrine, eliminating use-it or lose-it

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[113] *See generally* Appendix A.

[114] *See*, e.g., K.S.A. 82a-706, K.S.A. 82a-706b, K.S.A. 82a-706e, K.S.A. 82a-707(b), K.S.A. 82a-707(c), K.S.A. 82a-708b, and K.S.A. 82a-716.

[115] K.S.A. 82a-703 and K.S.A. 82a-718(a).

[116] K.S.A. 82a-707(e).

[117] K.S.A. 82a-718(a); *Hawley v. Kan. Dep't of Agric.*, 281 Kan. 603, 617–18, 132 P3d 870, 881 (2006).

[118] K.A.R. 5-25-4.

forfeiture of groundwater rights in areas closed to new appropriations.[119] These legislative developments have rendered the traditional 20-year horizon virtually obsolete with respect to the Cities' water rights on the Ranch because forfeiture of existing water rights no longer makes that water available for appropriation by others.

A significant portion of the infrastructure that will be needed to transport water from the Ranch to Hays and Russell will be financed by bonds. In order to obtain financing, the bond market will require a water supply that is adequate to meet the Cities' needs for the entire life of the project. Supplies that are adequate for only 10 or 20 years will be an effective denial of this Transfer Application.

A longer planning horizon in this case is a practical necessity, is consistent with the overall purposes of Kansas water law and its underlying policies, and is in line with the Cities' reasonable needs. For these and other reasons, DWR's traditional 20-year planning horizon is not appropriate for the Cities' water-transfer project.

The Cities request an Order approving the Transfer Application with a quantity that will float upwards as needs change and demand increases. These standards must be clear, objective, and not subject to the political or discretionary preferences of future Chief Engineers or Secretaries of Agriculture. They should be based on actual and projected population changes, the reasonable needs of additional users, and other measurable indices.

(s) The projected water needs of the applicant and of any other entities to be supplied water by the applicant, and the basis for those projections:

For the reasons set out in the preceding section, the projected water needs are not quantifiable at this time. The Cities request that the Panel approve the transfer of the entire

[119] K.S.A. 82a-718(e). *See also Hawley*, 281 Kan. at 630 (characterizing the use-it or lose-it doctrine as the "basic premise" of the Kansas Water Appropriation Act).

quantity available from the Ranch after the application of the consumptive use regulations, subject to an Order, as described above, that allows the quantity to float upwards as needs change and demands increase.

(t) Plans for any environmental mitigation made necessary by the proposed water transfer:

No such plans are necessary.

(u) A list of other federal, state and local permits necessary to complete the proposed water transfer and the projected dates they will be obtained:

This water-transfer project will consist of several phases extending across multiple years. It is not realistic at this early stage to list the projected dates for permits that will not be needed for some time. Moreover, the proposed plan describes several alternative pipeline routes. Thus, the precise number and locations of the numerous crossing permits that will be required cannot be realistically predicted until the detailed planning of the pipeline route is complete. The following list of permits are those the Cities may need to obtain to complete the project. The Cities will supplement this list as more information becomes available.

- Railroad line crossing permits or easements from Union Pacific, the Missouri Pacific, and the ATSF railroads.
- County road crossing permits, right-of-way use permits, and county floodplain permits from relevant counties, potentially including, but not limited to, Edwards, Pawnee, Rush, Ellis, and Russell Counties.
- State highway crossing and right-of-way use permits from the Kansas Department of Transportation.
- River and stream crossing permits from the United States Army Corps of Engineers and DWR.
- Notice of intent permits for stormwater control pursuant to National Pollutant Discharge Elimination System requirements from the state of Kansas, including a stormwater pollution prevention plan.
- Oil and gas pipeline crossing permits.

- ♦ Public water supply permits for the wellfield as well as for raw water collection from the Kansas Department of Health and Environment.

- ♦ Building and Electrical permits for planned structures in the wellfield.

- ♦ Prairie Chicken Mitigation/Exchange with the United States Fish and Wildlife Service; the Kansas Department of Wildlife, Parks and Tourism; and the Western Association of Fish and Wildlife Agencies.

(v) The current per capita per day usage of any public water supply user to be supplied water by the applicant, and the current average per capita per day usage of other similar users in a region of the state that is climatically similar. If the applicant's per capita per day usage exceeds the regional average, the applicant shall show why its per capita per day usage is reasonable:

See response to Paragraph (s), *supra*. Per capita use by existing water suppliers is available in a series of annual reports prepared by the DWR.[120]

(w) The projected per capita per day usage of any public water supply user to be supplied water by the applicant:

See response to Paragraph (s).

(x) A copy of the contingently approved application for change in the place of use, the type of use and the point of diversion:

The Change Applications were filed with the Chief Engineer on June 26, 2015, and are currently under consideration.

(y) Pursuant to K.A.R. 28-16-28b and K.A.R. 28-16-28d, the impacts of the proposed transfer on the water quality and designated uses of any stream that may be affected by the proposed transfer:

This Transfer Application seeks approval for a transfer of groundwater. No long-term impacts on surface water are anticipated. There will be stream crossings as described in paragraph (u) above but impacts on water quality, if any, are expected to be minimal and temporary.

[120] Exs. 74–89.

(z) Any additional factors that may be required by the chief engineer:

The Cities are not aware of any additional requirements.

The Cities of Hays and Russell respectfully request approval of this Transfer Application on the terms requested.

Respectfully submitted:

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David M. Traster

Certificate of Service

I hereby certify that this **Application to Transfer Water** was served by placing the same in the United States mail, postage prepaid, properly addressed this 6th day of January, 2016, to the following:

David Barfield, PE
Chief Engineer and Director
Division of Water Resources
Kansas Department of Agriculture
109 S.W. 9th Street
Topeka, KS 66612

Tracy Streeter
Director
Kansas Water Office
901 S. Kansas Avenue
Topeka, KS 66612

Susan Mosier, MD
Secretary of Health and Environment
Office of the Secretary
Charles Curtis State Office Building
1000 SW Jackson
Topeka, KS 66612

David M. Traster

Exhibit List

Ex. 1	R9 Ranch Water Right File and Circle Numbers
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Ex. 3	2015-06-24 - 21,729 Change Application
Ex. 4	2015-06-24 - 21,730 Change Application
Ex. 5	2015-06-24 - 21,731 Change Application
Ex. 6	2015-06-24 - 21,732 Change Application
Ex. 7	2015-06-24 - 21,733 Change Application
Ex. 8	2015-06-24 - 21,734 Change Application
Ex. 9	2015-06-24 - 21,841 Change Application
Ex. 10	2015-06-24 - 21,842 Change Application
Ex. 11	2015-06-24 - 22,325 Change Application
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Ex. 13	2015-06-24 - 22,327 Change Application
Ex. 14	2015-06-24 - 22,329 Change Application
Ex. 15	2015-06-24 - 22,330 Change Application
Ex. 16	2015-06-24 - 22,331 Change Application
Ex. 17	2015-06-24 - 22,332 Change Application
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Ex. 24	2015-06-24 - 22,341 Change Application
Ex. 25	2015-06-24 - 22,342 Change Application
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Ex. 27	2015-06-24 - 22,345 Change Application
Ex. 28	2015-06-24 - 22,346 Change Application
Ex. 29	2015-06-24 - 27,760 Change Application
Ex. 30	2015-06-24 - 29,816 Change Application
Ex. 31	2015-06-24 - 30,083 Change Application

Ex. 32 2015-06-24 - 30,084 Change Application

Ex. 33 2014-12-23 Interlocal Cooperation Agreement

Ex. 34 2015-04-06 Ellis County Resolution

Ex. 35 2014-04-10 Letter of Support Ellis County

Ex. 36 LaCrosse Letter of Support

Ex. 37 2015-12-22 Victoria Letter of Support

Ex. 38 2015-10-11 Hays Daily News - Not Even a Trickle Water Struggles Continue For Victoria Couple

Ex. 39 2015-10-11 Salina Journal - Shunned at Victoria McCarters Coming Up Dry in Quest For Safe Water

Ex. 40 2015-09-24 - KWCH - Victoria Resident Disputes City Over Clean Water

Ex. 41 2015-09-24 R9 Ranch Conceptual Development Memo

Ex. 41.1 2015-12-23 Conceptual Pipeline Corridor

Ex. 41.2 2015-06-23 R9 Conceptual Development PowerPoint

Ex. 41.3 R9 Ranch Groundwater Rights by Priority

Ex. 41.4 2015 R9 Ranch Well and Circle Status

Ex. 42 2015 Excerpt from Hays's Official Statement for Recent Bond Issue

Ex. 42.1 2015-12-13 Ellis County Government Property Values

Ex. 43 2015 Excerpt from Russell's Official Statement for Recent Bond Issue

Ex. 43.1 2015-12-13 Russell County Government Property Values

Ex. 44 2014-12 Hays-Russell Economic Impact Preliminary Report

Ex. 45 2010-05 Hays Population Report

Ex. 46 2002-01-09 Memo to David Pope re: Growth Projections for Hays & Russell

Ex. 47 1996-06-05 Madden - Potential Hydrologic and Economic Third-Party Effects of Transfer in Edwards County

Ex. 48 2015-08 DWR Water Use Fact Sheet

Ex. 49 2012 DWR Kansas Irrigation Water Use Report

Ex. 50 2001 - Gilson - The Value of Ogallala Aquifer Water in SW Kansas

Ex. 51 2014-03-28 Hays Letter to David Barfield - Water Conservation Plan

Ex. 52 1985-07-25 - Hays IGUCA Order

Ex. 53 2014-12 City of Russell Water Supply Study - Final Report

Ex. 54 1994-09-10 Wichita Eagle, Hays Covets Supply of Water to the South

Ex. 55 1991-03 March Ellis County Coalition - Hays Water Survey - Water Study Panel

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Ex. 57 2015 Map Showing Progress Reverting Ranch to Grass

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Ex. 59 2012-08 Russell Water Conservation Plan

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Ex. 61 2014-05-20 Russell Ordinance No. 1850 - Water Rates

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Ex. 65 2015-08-18 Russell City Code - Water Service Provisions

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Ex. 67 2009-06-29 Instructions for Completing Applications for Permit to Appropriate Water

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Ex. 69 2015-10 Rural Water Districts in Trego County

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Ex. 73 1971–2000 Average Annual Precipitation

Ex. 74 1997 KS Municipal Water Use Report

Ex. 75 1998 KS Municipal Water Use Report

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Ex. 77 2000 KS Municipal Water Use Report

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Ex. 79 2002 KS Municipal Water Use Report

Ex. 80 2003 KS Municipal Water Use Report

Ex. 81 2004 KS Municipal Water Use Report

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Ex. 86 2009 KS Municipal Water Use Report

Ex. 87 2010 KS Municipal Water Use Report

Ex. 88 2011 KS Municipal Water Use Report

Ex. 89 2012 KS Municipal Water Use Report

Ex. 90 1977-07-05 Black & Veatch, Hays Water Supply Memorandum

Ex. 91 1981-01-30 Approval of Application for File 33,296

Ex. 92 1984-05-31 Lower Smoky Hill IGUCA Order

Ex. 93 1990-05-22 Department of the Army Permit No. 2SB OXR 1 3138

Ex. 94 2004-06-15 Burns & McDonnell - Phase II Smoky Hill Well Field Study

Ex. 95 2002-11-15 Brikowski Final Report re: Sustainable Yield from Smoky Hill River Wellfield

Ex. 96 2003-02-14 Burns & McDonnell - Status Report on Kanopolis and Lake Wilson Evaluation

Ex. 97 2003-06-03 Burns & McDonnell - Summary Report, Smoky Hill Well Field Study

Ex. 98 2006-10-03 Initial Order Approving Well Relocation in Hays' Smoky Hill Wellfield

Ex. 99 2005-09-30 Burns & McDonnell - Supplemental Groundwater Modeling Report on Smoky Hill River Wellfield

Ex. 100 2010-08 Wilson Lake Environmental Report

Ex. 101 1987-09-16 Dakota Water Quality Data - Chart & Map

Ex. 102 1987-09-16 Dakota Test Hole Drilling Report

Ex. 103 1988-03-04 Dakota Test Hole Drilling Report

Ex. 104 1992-05-15 File 40,702 Application

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Ex. 106 1992-05-15 File 40,704 Application

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Ex. 108 1992-05-15 File 40,706 Application

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Ex. 110 1992-07-01 Permit for File 40,702

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Ex. 116 1997-01-01 Evaluation of Long-Term Effect of Water Resources Development on the Dakota Aquifer

Ex. 117 1992-07-21 Bucher, Willis & Ratliff Letter to Squier re: City of Hays, Dakota Wellfield Development

Ex. 118 KGS Dakota Aquifer Study, Vol. 1, Hydrogeologic Setting

Ex. 119 KGS Dakota Aquifer Study, Vol. 2, Numerical Modeling

Ex. 120 2001-09-24 Ground Water Associates, Inc. - South Russell Water Project Report

Ex. 121 2000-11-01 Water Supply Contract Between PWWSD #15 & Hays

Ex. 122 2001-08-03 Letter from KGS re: Review of Loan Fund Project No. 2304

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Ex. 124 2002-04-30 Ground Water Associates, South Russell Project - Water Quality Report

Ex. 125 2003-05 Bartlett & West Engineers - Water Supply Alternative Review

Ex. 126 1967-03 Wilson and Company, Water Supply Study Report for Russell

Ex. 127 1991-08-22 Wilson Lake Application for Permit to Appropriate Water

Ex. 128 2012-02-21 Letourneau letter granting Wilson Application extension to 12-31-16

Ex. 129 1993-08-26 Black & Veatch, Memorandum re: Wilson Lake

Ex. 130 1997-09 Wilson Lake Reconnaissance Study for Water Supply Storage Reallocation

Ex. 131 2003-02-20 Burns & McDonnell - Evaluation of Lake Wilson and Kanopolis Reservoir

Ex. 132 2003-09 Army Corps of Engineers Eastern Smoky Hill-Saline Basin Public Water Supply Study

Ex. 133 2005-07-07 Burns & McDonnell - Wilson Lake Water Treatment Facilities, Concept Design Report

Ex. 134 2015-01 KGS Information Circular re: The High Plains Aquifer

Ex. 135 1985-04-18 Letter from Layne-Western Co. re: Additional Groundwater Supplies

Ex. 136 1987-01 Clarke Well and Equipment, Inc. - Additional Water Supply in Trego County

Ex. 137 1989-09-21 Summary of Potential Long-Term Sources of Water Supply

Ex. 138 1989-08-24 Ground Water Associates Letter re: Water Rights for Sale in Graham County

Ex. 139 1997-05-13 Black & Veatch - Hays Water Resources Evaluation, Summary Report

Ex. 140 2002-01-10 PWWSD 15 Meeting Agenda

Ex. 141 1998-04-06 Black & Veatch - Memorandum - Post Rock Costs

Ex. 142 2006-06-14 Burns & McDonnell - Post Rock Water Supply Alternative Executive Summary

Ex. 143 1990-09-09 Michael Perrault, Precious Water - How Hays Plans to Keep it Flowing

Ex. 144 1993-04 Black & Veatch - Big Creek Water Banking Operation Plan

Ex. 145 2006-08 Bartlett & West Engineers - Hays Wastewater Reuse Update

Ex. 146 1991-05 Black & Veatch - Operation Plan Big Creek Water Banking Plan

Ex. 147 1993-04 Black & Veatch - Operation Plan Big Creek Water Banking Plan

Ex. 148 1974-04 Layne-Western Company - Groundwater Hydrology Study Saline River Valley

Ex. 149 1986-05-13 Black & Veatch Letter to Carter, Hays City Manager

Ex. 150 2001-08-22 Water Rights on Saline River

Ex. 151 1993-07-01 DWR Policy Safe Yield in Alluvium

Ex. 152 1994-10-13 Portion of KS Register Adopting K.A.R. 5-3-11

Ex. 153 2009 KWO - 2009 Kansas Water Plan

Ex. 154 2012 Cedar Bluff Lake Reservoir Information Sheet

Ex. 155 1984-05 Cedar Bluff Water Supply and Operation Studies

Ex. 156 2003-01-30 Letter from KWO re: Cedar Bluff

Ex. 157 1984-05-31 DWR Interim Order re: Lower Smoky Hill IGUCA

Ex. 158 1984-07-27 DWR Correctional Order re: Lower Smoky Hill IGUCA

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Ex. 160 2003-04-28 Letter from Bird to Sebelius

Ex. 161 2004-09-22 Cedar Bluff Artificial Recharge Pool Operations Agreement

Ex. 162 2008-06-30 Burns & McDonnell - Cedar Bluff Cattle Feeders Water Right Evaluation

Ex. 163 2011-07-15 City Commission Work Session Agenda Packet

Ex. 164 1990-01-03 Black & Veatch - Development of Big Bend Study

Ex. 165 1993-11-01 Water Group Subcommittee Meeting

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Ex. 167 1992-01-29 Walnut Creek IGUCA Order

Ex. 168 1996-12-06 Amendment to Walnut Creek IGUCA

Ex. 169 1998-06-24 Amendment to Walnut Creek IGUCA

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Ex. 171 1981-07-08 Pawnee Valley IGUCA Order

Ex. 172 1985-09-13 Pawnee Valley IGUCA Order

Ex. 173 2007-06-18 Pawnee Valley Phase 1 IGUCA Order

Ex. 174 2015-12-13 Info. from WIMAS Database for File 40,406

Ex. 175 1997-11-19 Hays Daily News, Glen Elder is Focus of Water Meeting

Ex. 176 1997-10-17 Letter from DWR to Hays County Coalition

Ex. 177 2002-01-31 Letter from PWWSD 15 to the Cities of Hays and Russell

Ex. 178 Pikitanoi Information

Ex. 179 1999-02-25 KWO, The Pikitanoi Report

Ex. 180 2003-02-13 Duffy Memo to Greenlee re: Water Issues for Hays and Russell

Ex. 181 1997-03-24 Doug Wildin Letter

Ex. 182 2002-07 Ground-Water Recharge in the Upper Arkansas River Corridor in SW KS

Appendix A

This Appendix summarizes the Cities' efforts to find alternative sources of water and places the Cities' extensive efforts to resolve their longstanding water-supply deficits in context. It is not a complete statement of their joint or several efforts, nor does it detail all of the Cities' efforts to evaluate each alternative. Only a few key documents for each alternative are provided at this time.

Evaluations of prospective sources run the gamut from the extensive efforts by multiple engineering firms to evaluate the "East Russell County Option" to a cursory review of a proposal to purchase Arkansas River surface water from Kearney County in Southwest Kansas.

A complete evaluation of a water supply alternative is a time-consuming, expensive, and complex process that requires, at a minimum, development of a conceptual design, analysis of standard criteria, and comparison to other alternatives. But the initial decision to conduct a complete evaluation of a particular source is generally intuitive, and many prospective sources do not justify the time and resources required for a complete analysis.

Thus, while all of the options discussed below were given the consideration warranted, not all of them have the same level of documentation. While numerous considerations are evaluated, the most important factors include the following:

(1) Reliability. A prospective source must be able to supply the projected net quantity. This includes evaluating:

   a. safe yield, *i.e.*, the net projected quantity must be available during a long-term and severe drought without causing significant ecological impacts;

   b. need, *i.e.*, the source must be able to supply average-day and maximum-day demands, either individually or in combination with other sources; and

   c. quality issues, *i.e.*, pollution and water quality variability.

(2) Water rights. Water must be physically available and diversion must be legally permissible. This includes evaluating:

   a. the extent to which the source has been developed by other users and the relative priority of other uses compared to the priority of prospective water rights; and

   b. other legal considerations, principally the Kansas Water Transfer Act.

(3) Project characteristics. Factors that affect both the total cost and cost per unit of water, include:

   a. proximity to the Cities;

   b. the extent that existing infrastructure can be used;

   c. the ability to develop the project in stages so that costs can be closely matched to demand;

   d. the type and extent of required treatment, for example;

      i. surface water and groundwater have different treatment requirements,

ii. finished water must comply with Safe Drinking Water Act requirements,[121]

iii. aesthetics (taste and odor) must be acceptable to the consumer,

iv. common contaminants like chlorides, nitrates, and pesticides may require special treatment, and

e. the presence of endangered species, wetlands, or historically important property.

(4) Project Costs. Estimation, evaluation, and comparison of total project costs, including:

a. raw water, water right, or storage acquisition;

b. land and right-of-way purchase;

c. permitting and environmental mitigation;

d. planning, design, and construction;

e. operation, maintenance, and replacement;

f. energy and utilities;

g. financing; and

h. technical, legal, and other professional services.

Smoky Hill River

The City of Hays' Smoky Hill River wellfield authorizes withdrawal of up to 2,800 acre-feet of water from the alluvium pursuant to three certified water appropriation rights, Files 1,248, 5,757, and 33,296. The quantity has been reduced by a 1984 IGUCA.

Russell's water rights at Pfeiffer, Files 1,267, 1,861, 17,586 and 17,587, permit the diversion of up to 1,086 acre-feet of surface water and 961 acre-feet of groundwater and are also limited by the 1984 IGUCA. Russell also has 2,700 acre-feet of storage in Cedar Bluff, File 7,628, which yields a maximum of 2,000 acre-feet of water that Russell can have released each year.

For decades, Hays has explored the idea of expanding and optimizing its Smoky Hill River wellfield near Schoenchen to improve the reliability and quantity of water available from that limited water source.

In July of 1977, Black and Veatch submitted a *Water Supply Memorandum* to Hays that examined existing and anticipated water requirements and recommended a plan to expand the City's total water supply to meet current and immediate future water requirements including adding additional wells in the Smoky Hill River alluvium both east and west of then-existing wells.[122]

On July 19, 1979, the City filed five applications for new water rights in the Smoky Hill wellfield: Files 33,292, 33,293, 33,294, 33,295, and 33,296. The applications requested permits to drill 18 new wells to divert an additional 1,400 acre-feet at an additional 6,300 gpm. This

[121] 42 U.S.C. 300f, *et seq.* and K.S.A. 65-161, *et seq*.

[122] Black & Veatch, *Water Supply Memorandum*, at PDF p. 11 (July 5, 1977), Ex. 90.

would have increased the total diversion from the Smoky Hill wellfield to 3,900 acre-feet per year at a rate of 9,900 gpm.

After discussion with DWR, the City withdrew all but one of the applications because of impairment and other concerns. On January 30, 1981, the Chief Engineer issued a single permit, File 33,296, for two new wells with a combined capacity of up to 300 acre-feet per year.[123]

On May 21, 1984, the Chief Engineer issued an order establishing an IGUCA in the Smoky Hill River alluvium stating that for 1985 and until modified by the Chief Engineer, all non-irrigation water rights within the boundaries of the IGUCA are restricted to 90% of the maximum usage in 1981, 1982, or 1983.[124]

Irrigation use was restricted to the lower of 15 acre-inches per acre on the maximum number of authorized acres irrigated during any calendar year from 1977 through 1982 or the authorized quantity.[125]

In 1989, Hays obtained authorization from the U.S. Army Corps of Engineers for the "one-time construction of three temporary instream dams to hold water in an attempt to recharge the aquifer."[126] The one-time construction was limited to "emergency water storage," and the City was required to remove the dams "immediately following the recharge of the . . . wellfield or the elimination of [the] emergency water situation."[127] The dams were not constructed, presumably because they were not intended to provide a long-term, sustainable water supply and could have impaired downstream water rights.

In 1995, Ground Water Associates investigated the Smoky Hill River wellfield and recommended that Hays rehabilitate, relocate, and replace certain wells. The investigation included drilling 32 test holes, installing five test wells, and conducting aquifer tests. The report proposed locations for two wells southwest of the wellfield as it existed at the time, which would expand the field one-half mile upstream.[128]

A 2002 report by Tom Brikowski, Ph.D., Geology, of the University of Texas, evaluated the sustainable yield from Hays' Smoky Hill River wellfield. Dr. Brikowski concluded that, based on Hays' average water use in 2002, the wellfield will routinely require groundwater overdrafting during the summers and that dry periods "may deplete the aquifer sufficiently that limited extraction (e.g., 1,000 acre-ft/yr) is possible until the drought ends."[129]

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[123] Approval of Application for File No. 33,296, Ex. 91.

[124] *In re Designation of an Intensive Groundwater Use Control Area in Trego, Ellis, Rush and Russell Cnties, Kan.* (Kan. Dep't of Ag., Div. of Water Res. May 31, 1984), Ex. 92.

[125] *Id.*

[126] Dep't of the Army Permit (Mar. 26, 1990), and accompanying documents, at PDF pp. 3–10 (permit); PDF p. 11–12 (letter regarding permit), Ex. 93.

[127] *Id.* at PDF p. 6.

[128] Burns & McDonnell, *Phase II Report*, at PDF p. 2 (June 15, 2004), Ex. 94.

[129] Tom Brikowski, *Final Report: Sustainable Yield from the Smoky Hill River Wellfield, Schoenchen, KS*, at PDF p. 4 (Nov. 15, 2002), Ex. 95.

Dr. Brikowski concluded that the wellfield has "minimum storage capability to rely on in times of limited stream flow."[130] He recommended expanding the wellfield to help "drought proof" it. Later, Burns & McDonnell concluded that even if the City adopted Dr. Brikowski's recommendations it would only extend the wellfield's safe yield to meet Hays' water needs "until about 2011."[131]

In 2003, Burns & McDonnell submitted an evaluation of the options to improve the Smoky Hill River wellfield to allow Hays to pump its full water right without significant interference with third-party wells and to expand the wellfield's ability to produce during droughts.[132]

Burns and McDonnell concluded that Hays should be able to pump its full water right as long as there is flow in the River.[133] However, during extended dry periods, additional water storage is required.[134]

Burns & McDonnell agreed that expansion of the wellfield would help the City withstand droughts, as noted in Dr. Brikowski's report. "However this expansion, a move of a relatively long distance, presents potential regulatory hurdles. Additionally multiple wells may need to be relocated to capture the water available in storage."[135] Moreover, "[e]ven if new [water] rights were available, they would be subject to minimum desirable streamflow restrictions," which "would potentially result in a new well/water right being unavailable during critical drought periods."[136]

Burns & McDonnell further cautioned against overpumping the wellfield, noting that doing so may result in "accelerated deterioration of the wells, well screens, surrounding gravel pack and aquifer materials, and potential water quality deterioration because of aeration of the aquifer materials."[137] The report recommended that Hays move forward with further investigation and testing of expanding the wellfield.[138] The City chose to upgrade the wellfield,[139]

In June 2004, Burns & McDonnell issued its follow-up "Phase II Report" for the Smoky Hill River wellfield expansion project.[140] Phase II included field investigations to identify new well sites and "form an opinion of the probable cost of the wellfield improvements."[141] The

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[130] *Id.*

[131] Burns & McDonnell, *Status Report on Wilson Lake and Kanopolis Water Supply Evaluation*, at PDF p. 1 (Feb. 14, 2003), Ex. 96.

[132] Burns & McDonnell, *Summary Report*, (June 3, 2003), Ex. 97.

[133] *Id.* at PDF p. 1.

[134] *Id.*

[135] *Id.* at PDF p. 2.

[136] Burns & McDonnell, *Interim Report*, at PDF p. 15 (Apr. 1, 2003), Ex. 97.

[137] *Id.* at PDF p. 19.

[138] Burns & McDonnell, *Summary Report*, at PDF p. 3 (June 3, 2003), Ex. 97.

[139] Burns & McDonnell, *Phase II Report*, at PDF p. 3 (June 15, 2004), Ex. 94.

[140] *Id.*

[141] *Id.* at PDF p. 1.

report presented several options including installation of new wells in different locations without requesting additional water rights.[142]

The Report recommended relocating five existing wells and redrilling one well that was in poor condition.[143] In addition, the City requested additional work for a "capital improvement package," replacing the "east chlorination facility and equipment, evaluation and replacement or modification of raw water transmission lines within the existing wellfield and upgrades to the [monitoring and reporting] system."[144] The wellfield modifications would increase the average well spacing, which would reduce potential drawdown interference.[145]

On October 7, 2004, Hays proceeded with the recommended plan that began with a series of applications to change the points of diversion for the wells in the Smoky Hill Wellfield.[146] In response to concerns expressed by "other water users," DWR required Hays to perform further "hydrologic analyses in order to determine the potential impacts to other water users, evaluate impacts to water levels, and estimate the amount of stream depletions in the vicinity of the wellfield."[147] In response, Burns & McDonnell submitted a report concluding that the City's proposed wellfield enhancement would not impact the Smoky Hill River.[148]

A public hearing was held in May of 2006.[149] Then-Chief Engineer, David Pope, who presided at the hearing, issued an Order on October 3, 2006, approving the change applications in part and imposing terms and conditions.[150] The project was completed in 2009.

Even with the improvements to the Smoky Hill wellfield, Hays is unable to withdraw its full allocation of water during periods of low streamflow. There are other challenges as well. Russell's wellfield is downstream from the Hays wellfield and recharge at Pfeifer is largely dependent on stream flow in the River. Flow in the Smoky Hill River, including releases from Russell's storage right in Cedar Bluff, must make it past the Hays wellfield to replenish the Russell wellfield.

A recent Bartlett & West, Inc. study concluded that the Smoky Hill River alluvium is not a viable source for Russell noting the existence of the IGUCA, minimum desirable streamflow requirements, and the need for treatment.[151]

Groundwater from the Smoky Hill River alluvium is not an economically or technologically feasible alternative source of supply that is available to the Cities. The R9 Ranch was selected over this alternative for a number of reasons but mainly because this source is being

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[142] *Id.* at PDF p. 2.

[143] *Id.* at PDF p. 3.

[144] *Id.* at PDF p. 7.

[145] *Id.* at PDF p. 8.

[146] *Initial Order*, at ¶ 1 (Kan. Dep't of Ag., Div. of Water Res. Oct. 3, 2006), Ex. 98.

[147] Burns & McDonnell, *Supplemental Modeling Report*, at PDF p. 1 (Sept. 30, 2005), Ex. 99.

[148] *Id.* at PDF p. 14.

[149] *Initial Order*, at ¶ 19 (Kan. Dep't of Ag., Div. of Water Res. Oct. 3, 2006), Ex. 98.

[150] *Id.* at 34-35.

[151] Bartlett & West, Inc., *Water Supply Study for the City of Russell, Kansas*, at pp. 23–24 (December 2014). Ex. 53.

utilized at its full capacity and often beyond. It is not a reliable source of additional water for either Hays or Russell. In fact, approval of the transfer is likely to increase the health of the Smoky Hill River between Cedar Bluff and the Kanopolis Reservoir in Ellsworth County.

Dakota Aquifer

The Dakota aquifer underlies most of the Smoky Hill-Saline River Basin, but "there is great variability in aquifer yield and quality."[152] In 1987, the need for additional water supplies led the City of Hays to begin looking for locations to drill wells in the Dakota formation even though it was known that the water was going to be high in chlorides and other minerals. Samples were taken at four locations just north of Hays and eight locations to the south.[153]

As a result of initial testing, on May 15, 1992, Hays filed six Applications for new water appropriation rights for six new wells that would divert up to 860 acre-feet from the Dakota formation southwest of town: Files 40,702; 40,703; 40,704; 40,705; 40,706 and 40,707.[154]

On July 1, 1992, the Chief Engineer approved all six Applications and issued Permits that contained a number of specific limitations.[155] The Permits require Hays to install and maintain an observation well network to monitor water levels in the aquifer, to collect water level data from an observation well network, and to submit a written summary of the data with each annual water use report.

The City commissioned the Kansas Geological Society to perform a safe yield study.[156] The study found that the City's wells were located in a confined system with little freshwater recharge. The study suggested that excessive pumping would deplete the aquifer and/or degrade the water quality. Ultimately, the study did not determine a safe yield, but indicated it would be significantly less than original projections.[157]

As a result of the study and the need to blend the mineralized Dakota water with existing water sources, Hays embarked on a pumping program to perfect its Dakota Aquifer water right.

DWR proposed Certificates of Appropriation at the City's request. Upon review, the City requested that DWR refrain from issuing the draft certificates because not all of the water rights have been fully perfected.

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[152] U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 22 (Aug. 2010), Ex. 100.

[153] Dakota Water Supply Analysis, Ex. 101; Test Hole Drilling Report, (Sept., 16, 1987), Ex. 102; Test Hole Drilling Report, (Mar. 4, 1988), Ex. 103.

[154] Applications for Files 40,702; 40,703; 40,704; 40,705; 40,706 and 40,707, Exs. 104–109.

[155] Exs. 110–115.

[156] Kansas Geological Survey, *An Evaluation of the Long-term Effect of Water Resources Development on the Dakota Aquifer in the Vicinity of the Hays Well Field*, Ex. 116. *See also* Letter from Bucher, Willis & Ratliff to Laverne Squier regarding recharge concerns for wells in the Dakota wellfield and corresponding Black & Veatch memorandum (July 21, 1992), Ex. 117.

[157] Kansas Geological Survey, *An Evaluation of the Long-term Effect of Water Resources Development on the Dakota Aquifer in the Vicinity of the Hays Well Field, Vol. 1: Hydrogeologic Setting*, Ex. 118; *Vol. 2: Numerical Modeling*, Ex. 119.

Water use from this source has not been significant. The following table summarizes the water withdrawn from the six Dakota wells. Some instances of "0.00" are the result of rounding small quantities.

File No.	40,702	40,703	40,704	40,705	40,706	40,707	Total Annual Use
Year	AF Used	AF Used	AF Used	AF Used	AF Used	AF Used	
1992	0.00	0.00	0.00	0.00	2.91	3.04	5.95
1993	19.64	17.37	16.10	19.39	17.75	17.44	107.69
1994	13.90	0.00	18.86	17.70	16.16	0.69	67.31
1995	12.66	11.31	11.14	14.63	14.62	15.38	79.74
1996	12.12	15.35	13.37	16.99	13.54	16.20	87.57
1997	10.33	7.24	5.86	7.44	10.53	7.78	49.18
1998	12.43	13.19	13.69	12.13	12.13	10.92	74.49
1999	13.87	5.48	13.90	17.77	11.34	15.46	77.82
2000	11.08	13.21	13.34	15.31	14.05	12.56	79.55
2001	75.00	7.57	8.84	8.77	6.59	8.80	115.57
2002	119.59	0.00	0.00	0.61	0.00	0.00	120.20
2003	0.00	0.00	0.00	0.01	117.57	0.03	117.61
2004	0.18	0.02	0.01	95.87	0.01	0.01	96.10
2005	15.11	32.74	12.24	13.94	20.30	11.04	105.37
2006	0.95	0.00	128.68	1.14	2.07	0.01	132.85
2007	0.00	0.00	0.00	0.00	0.00	14.58	14.58
2008	21.97	0.00	0.00	0.00	54.83	0.00	76.80
2009	11.98	0.00	0.00	0.12	102.54	1.41	116.05
2010	0.00	0.00	0.00	0.00	0.00	78.23	78.23
2011	37.20	65.35	0.00	0.01	0.04	6.24	108.84
2012	0.00	31.15	0.00	0.01	0.00	0.00	31.16
2013	0.00	0.74	0.00	0.01	0.00	150.80	151.55
2014	0.01	0.00	0.00	125.01	0.59	0.89	126.50
Average Annual Use	**16.87**	**9.60**	**11.13**	**15.95**	**18.16**	**16.15**	**87.86**

Additional water from the Dakota formation is not an economically or technologically feasible alternative source of supply available to the Cities for a number of reasons, including:

- It is a non-renewable source;
- It has significant water quality issues that would require extensive treatment; and
- Well spacing requirements for a new long-term supply would require numerous small-quantity wells spread across a vast area.

South Russell Project

The South Russell Project was developed by the Cities working through the PWWSD #15 staff in the late 1990s. It was initially thought that there was significant potential for a wellfield in Eastern Russell County, along the Smoky Hill River alluvium. Several contractors and engineering firms have investigated this option. The initial thought was that the area could produce in excess of 7,000 acre-feet of water annually.[158] Early studies estimated that the plan would cost around $20.8 million in year-2000 dollars.[159]

This option was also viewed as a stepping stone to Kanopolis. When it became clear that Kanopolis was not a viable option, the South Russell project became less attractive as well.

In 2001, PWWSD #15 hired Ground Water Associates to review the initial plans. That review concluded that the yield was not as high as originally thought and questioned the ability of the area to provide water during a drought because the alluvium would be subject to the same drought factors as Hays' and Russell's current wellfields.[160]

Ground Water Associates concluded that the project could add another 1,000 acre-feet of supply, but noted that water from the project will have to be treated or blended to produce a potable supply and that the project would not provide "a drought proof supply since both the vertical and horizontal wells will be subject to the minimum desirable streamflow requirements.[161] Put simply, during droughts, when the Cities' water needs were greatest, the South Russell Project could not be relied on to provide a significant quantity.

A 2001 report from the Kansas Geological survey supported this conclusion, noting that the bulk of the water would come from the Smoky Hill River, that the discharge from that source "varies substantially" in the area of the planned wellfield, and that the flow of the river would be insufficient to meet previously projected production values during dry periods.[162] This was a critical finding because the Smoky Hill River is subject to minimum desirable streamflow requirements,[163] and the water rights from the proposed project would be junior to other earlier rights on the River.[164]

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[158] Ground Water Associates, Inc., *Report on South Russell Water Project*, at PDF p. 1 (Sept. 24, 2001) (noting that the South Russell would have an initial production capacity of about 2 million gallons per day that would eventually expand to 7 million gallons per day, *i.e.*, about 7,800 acre-feet per year), Ex. 120.

[159] Water Supply Contract between Hays and PWWSD #15, at PDF p. 3 (Nov. 1, 2000), Ex. 121 (Nov. 1, 2000).

[160] Ground Water Associates, Inc., *Report on South Russell Water Project*, at PDF pp. 1–3 (Sept. 24, 2001).

[161] *Id.* at PDF p. 1.

[162] Letter from Donald Whittemore of the Kansas Geological Survey to David Traster (Aug. 3, 2001), Ex. 122.

[163] K.S.A. 82a-703c.

[164] Letter from Donald Whittemore of the Kansas Geological Survey to David Traster, at PDF p. 2 (Aug. 3, 2001), Ex. 122.

The Kansas Water Office stated: "It is difficult to justify a project of this scope and cost that does not address the drought vulnerability of Hays and Russell."[165] This option was not desirable as water would only be readily available when Hays and Russell's existing sources were also viable. The high cost of treatment was also a factor as the water would need to be desalinated.[166] As the plan progressed, it became clear that the South Russell Project was not a viable long-term option.

In April 2002, Ground Water Associates provided a second report detailing groundwater quality issues.[167] The report concluded that reverse osmosis treatment would be required for the majority of water available from the proposed project, with a smaller quantity that could be treated with standard methods to reduce hardness, iron, and manganese.[168]

After extensive efforts and considerable expense to explore and develop the South Russell Project, the Cities concluded that, unlike the Ranch, the project did not offer a feasible long-term solution to their water problems. Poor water quality, limited quantity, high expense, and the important fact that the project would not provide a drought-proof source of water eliminated this alternative.

Wilson Lake

Wilson Lake was constructed in 1964 and is managed by the U.S. Army Corps of Engineers ("USACE") for flood control, irrigation, navigation, recreation, fish and wildlife, and water quality purposes. "Wilson Lake has long been considered a potential water supply source [for the Cities], especially for Russell[,] because of its relatively close proximity compared to other reservoir sources."[169] However, there are at least three major problems with Wilson Lake: (1) water quality and (2) the cost to acquire storage from the USACE and (3) the fact that Wilson is not authorized for municipal and industrial storage.

In order to utilize water from Wilson Lake, the USACE will need to complete a reallocation study. That effort was started several years ago but was never completed and there are no indications that it will be completed. To go forward, the study will have to be completed, and it will have to conclude that 30,000 acre-feet of storage can and should be reallocated to municipal industrial use. That storage will then have to be reallocated by Congress, which is likely to face opposition on several fronts. If finally reallocated, the Cities will have to purchase that storage from the Corps, which could be problematic because of cost and competition from other prospective purchasers.

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[165] Letter from Al LeDoux, Director of the Kansas Water Office, to Dave Traster (Aug. 6, 2001), Ex. 123.

[166] Letter from Donald Whittemore of the Kansas Geological Survey to David Traster (Aug. 3, 2001), Ex. 122.

[167] Ground Water Associates, *Ground Water Investigation* (Apr. 30, 2002), Ex. 124.

[168] *Id.* at PDF p. 2.

[169] Bartlett and West, *Water Supply Alternative Review*, at PDF p. 13 (May 2003) Ex. 125.

[169] *Id.*

Federal law requires municipalities to pay for water supplies. Congress has established a national policy, making states and local interests responsible for developing municipal water supplies.[170]

The USACE has the authority to reallocate storage in existing storage space to M&I use. Between 1958 and 1979, the price for reallocated storage was based on the original cost of construction of the federal reservoir.[171] In 1979, the Corps began charging municipalities the highest of (1) the benefits or revenues foregone, (2) replacement cost, or (3) the "updated cost of storage."[172] The "updated cost of storage" is an attempt to "duplicate the cost of the project, as originally constructed, at today's prices."[173] Purchasers must also pay construction and operational costs associated with reallocation, including costs to revise the "water control plan" and environmental mitigation costs.[174]

In 1967, Wilson and Company prepared a Report for the City of Russell analyzing a number of alternative sources, including water from the Saline River Valley.[175] Water quality is a major issue. Because the Saline River has cut down into the Dakota formation, there are significant water quality issues in both surface and groundwater.[176] The opening paragraph of the section discussing the Saline River states:

> The water being stored in Wilson Reservoir is of rather poor quality at the present time because it contains excessive amounts of chlorides. The concentrations vary over the reservoir area but all appear to be too high to merit consideration of the source for a municipal water supply.[177]

In spite of known quality issues, on August 22, 1991, Hays and Russell filed an application for a water appropriation right to divert up to 8,000 acre-feet of water annually from Wilson Lake for municipal purposes.[178] The application remains viable until at least December 31, 2016.[179]

In 1993, Black & Veatch prepared a brief report regarding the development of a water supply from Wilson Lake that would serve both communities.[180] The report states that treatment to remove high levels of minerals would be required, discusses options for disposal of brine from

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[170] 43 U.S.C. 390b(a).

[171] U.S. Army Corps of Engineers *Water Supply Handbook*, Dec. 1988, at p. 4-4. http://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/96ps4.pdf.

[172] *Id.* at p. 4-8.

[173] *Id.* at PDF p. 76.

[174] *Id.*

[175] Wilson and Company, *Water Supply Study for the City of Russell* (Mar. 1967), Ex. 126.

[176] *Id.* at PDF p. 13.

[177] *Id.* at PDF p. 61.

[178] Ex. 127.

[179] *See* Letter from Lane Letourneau to David Traster (Feb. 21, 2012), Ex. 128.

[180] Black and Veatch, *Memorandum regarding Wilson Lake* (Aug. 26, 1993), Ex. 129.

the treatment process, and summarizes the needed infrastructure. It does not address the cost to purchase storage from the USACE.[181]

In 1997, USACE studied the feasibility of reallocating 30,000 acre-feet of storage space in Wilson Lake to municipal and industrial use.[182]

> Based on a Wilson Lake 2 percent net yield of 80 c.f.s. as confirmed in the yield study and a Wilson reservoir simulation model developed for this report, we determined that approximately 30,000 acre feet of storage would be required to provide the cities of Hays and Russell 8,000 acre-feet per year at the pipeline.[183]

The study compared the costs to acquire storage in Wilson Lake plus infrastructure and treatment of 8,000 acre-feet of Wilson Lake water with the cost of piping 5,500 acre-feet of water from the Ranch *plus* 2,500 acre-feet from Kanopolis Lake.[184] The 1997 comparison indicated that Wilson Lake was less costly. At that time, the "updated cost of storage" was estimated to be $4.75 million but the actual updated cost of storage would be determined during the fiscal year that a contract is actually approved.[185] Based on an ENR Construction Cost Index of 5,825 in 1997 and 10,092 in 2015, the cost to acquire storage in Wilson Lake would be almost $8.25 million.

In 2002, the Cities, acting through PWWSD #15, requested proposals for an evaluation of Lake Wilson and Kanopolis Reservoir as public water supply sources, ultimately selecting Burns & McDonnell to perform the study.[186] That firm's 40-page report evaluated three potential water sources for the Cities: Kanopolis Reservoir, Wilson Lake, and a new wellfield south of Russell running east for approximately 20 miles.[187]

The study concluded that the new wellfield should not be pursued because the Cities do not own the water rights and may be unable to obtain them, and no safe yield information regarding this "potential water source" was available to evaluate it.[188]

The study estimated costs to develop Wilson Lake ($84 million) and Kanopolis ($75 million) in 2002 dollars; however, the report did not include a price for acquiring the water rights from Kanopolis because the Cities would be required to purchase water from the Kansas Water Office under its water marketing program. The study concluded that both Wilson and Kanopolis would make acceptable water supply alternatives.[189]

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[181] *See id.*

[182] U.S. Corps of Engineers, *Wilson Lake Reconnaissance Study for Water Supply Storage Reallocation* (Sept. 1997), Ex. 130.

[183] *Id.* at PDF p. 12.

[184] *Id.* at PDF pp. 20–21.

[185] *Id.* at PDF p. 16.

[186] *See* Burns & McDonnell, *Evaluation of Lake Wilson and Kanopolis Reservoir* (Feb. 20, 2003), Ex. 131.

[187] *Id.* at PDF pp. 12–13. Both the Kanopolis Reservoir and the South Russell option are discussed in more depth in those respective sections herein.

[188] *Id.* at PDF p. 18.

[189] *Id.* at PDF p. 30.

However, it eventually became clear that Wilson Lake was not a feasible long-term water supply for the Cities for several reasons. As stated in a 2003 "Water Supply Alternative Review" by Bartlett and West:

> The biggest technical limiting factor for tapping [Wilson Lake] has been the raw water quality. Relative to other reservoirs, the water within Wilson Lake is much more mineralized, particularly regarding natural occurring salts that enter the impoundment. Dissolved monovalent salts are not typically removed in conventional treatment processes. Therefore, in order to use the water for municipal use, the water must in effect be treated twice, once as a surface water supply and secondly through a desalinization process, nor most commonly Reverse Osmosis (RO). A byproduct of the RO process is a concentrated bring that under [2003] KDHE policies requires disposal into a Class I injection well.[190]

A 2003 report by the Kansas Water Office and USACE outlined potential water supplies for the Eastern Smoky Hill-Saline Basin, which included the Cities of Hays and Russell. Wilson Lake was eliminated as a potential water source "due to water quality issues (*i.e.*, high salinity requires desalination of water and disposal of brine, both increase cost)."[191]

Wilson Lake was also much more expensive than the Ranch because of its poor water quality and the cost to acquire storage. In a 2005 design report, Burns & McDonnell estimated that the costs to treat and deliver Wilson Lake water would be about $94 million in 2005 dollars.[192]

All things being equal, infrastructure costs for the Wilson Lake option are roughly equal to the Ranch costs. But all things are not equal. The Cities already own the water rights on the Ranch but would have to purchase storage in Wilson Lake at an estimated $8.2 million in 2015 dollars in additional cost. That can only happen if Congress reallocates the storage in the Lake. And the operation and maintenance costs for a reverse osmosis plant and a deep brine disposal well make the cost disparity even larger. In the end, the uncertainty, high cost, and extremely poor water quality have eliminated Wilson as a viable long-term water supply alternative for the Cities.

Ogallala Aquifer

According to a 2010 study by the U.S. Army Corps of Engineers, the Ogallala aquifer accounts for approximately 134,000 square miles of the High Plains aquifer and is the dominant source of water in western Kansas. Groundwater Management Districts are involved in the management of most of this aquifer.

The Smoky Hill-Saline River Basin overlaps portions of the aquifer managed by GMD1 (western Kansas) and GMD4 (northwestern Kansas). The aquifer is severely depleted within

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[190] Bartlett and West, *Water Supply Alternative Review*, at PDF p. 13 (May 2003) Ex. 125.

[191] Kansas Water Office for U.S. Army Corps of Engineers, *Planning Assistance to States Program Eastern Smoky Hill-Saline Basin Public Water Supply System*, PDF p. 10 (Sept. 2003), Ex. 132.

[192] Burns & McDonnell, *Wilson Lake Water Treatment Facilities, Concept Design Report*, at PDF p. 81 (July 7, 2005), Ex. 133.

GMD1, which has been closed to all new water appropriations.[193] Small groundwater appropriations may be obtained in some locations in GMD4, but such appropriations, which are under 15 acre-feet per year, do not provide viable long-term water solutions for the Cities.[194]

The Cities' independent investigation of the Ogallala supports the USACE's conclusion that it is not a viable water supply for the Cities. Saturated thicknesses and recharge are minimal and its useable lifetime is already "below minimum threshold" in most of Gove, Trego, and Graham Counties—the closest three counties to Hays and Russell that overlay the aquifer.[195]

Trego County

An April 18, 1985 letter from Bob Vincent, then with Layne-Western, to Ken Carter suggested that Hays look at the Ogallala formation in northeast Trego County. This suggestion was based on a review of published material rather than actual field work.[196]

Following up on this suggestion, in January 1987, Black & Veatch and Clarke Well & Equip drilled six test wells in the northern portion of Township 12S Range 21W, northwest of Ellis near the Trego-Ellis County line. The wells were approximately 22 miles from Hays. Two of the wells had saturated thicknesses of 34 feet and an estimated potential yield of 250 gpm. The report concluded a dependable source of water might be available in this area.[197]

Consistent with the 1987 testing, a September 1989 report included a potential option for two 250 gpm wells, 25 miles of 16-inch pipeline, and a 1,000 gpm pump station at an initial cost of $11,000,000 or about $14,000 per acre-foot.[198] If additional sources could be located in the area, the cost per acre-foot would come down as the wellfield expanded.[199] This option was not pursued for a number of reasons, including the high cost per acre-foot, other sources that would reduce the per-acre-foot cost were never located, new water rights would be needed, the Transfer Act[200] would be triggered, the total quantity was limited, and the aquifer is not recharged.[201]

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[193] K.A.R. 5-21-4(a).

[194] *See* U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 22 (Aug. 2010), Ex. 100.

[195] Kansas Geological Survey, *The High Plains Aquifer*, at PDF p. 4 (Sept. 2001, Rev. Dec. 2009, Jan. 2015), Ex.134.

[196] Ex. 135.

[197] Clarke Well and Equipment, Inc., *Pursuit of Add'l Water Supply E. Trego Cnty.* (Jan. 1987), Ex. 136.

[198] Ex. 137 at PDF p. 6.

[199] *Id.*

[200] In 1989, the Water Transfer Act, K.S.A. 82a-1501, *et seq*., defined a "water transfer" as the diversion and transportation of 1,000 acre-feet or more per year for beneficial use outside of a ten-mile radius from the point of diversion. L. 1983, Ch. 341, §1(a). The definition was expanded to 2,000 acre-feet and 35 miles in 1993. L. 1993, Ch. 219, §1(a)(1).

[201] Ex. 137 at PDF p. 6.

Graham County

In August of 1989, Bob Vincent, by then with Ground Water Associates, Inc., wrote to Les Lampe, the Director of Water Resources Engineering for Black and Veatch, informing him of the availability of about 2,000 acre-feet of irrigation water from the Ogallala formation in Graham County.[202]

A September 1989 Report ranked this near the bottom of several options studied.[203] While there were water rights available for sale in north-central Graham County, total hardness levels were considered borderline and would likely require treatment.[204]

The 1989 report estimated costs at $21,000,000 for 70 miles of 20-inch pipe, $600,000 for 11 new municipal wells, $400,000 for three new booster stations, and approximately $4,000,000 for treatment plant expansions for a total cost of $26,000,000.[205] The costs to acquire water rights and rights-of-way, legal fees, and engineering costs were not included for any of the options considered in that study.[206]

This option was considered and rejected for the same reasons the Trego County option was not pursued.[207]

In a May 13, 1997 letter report, Black and Veatch concluded that the option did not appear to be cost-effective because of the cost to purchase 5,500 acre-feet of existing water rights, coupled with the cost of the infrastructure to bring the water to Hays.[208]

Ogallala water is not an economically or technologically feasible alternative source of supply that is available to the Cities. The R9 Ranch was selected over this alternative for a number of reasons, including the following:

- Quantities in the Ogallala are limited and not being replenished.
- Saturated thickness is minimal in areas closest to Hays and Russell.
- The aquifer's useable lifetime is already below minimum thresholds.
- Obtaining water from the Ogallala to the west would require the Cities to acquire existing water appropriation rights from irrigators already using this source even though the Cities already own water rights in Edwards County.
- There is no contiguous concentration of senior appropriation rights comparable to the R9 Ranch so water rights from multiple owners would have to be acquired.

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[202] Letter from Ground Water Associates to Black & Veatch (Aug. 24, 1989), Ex. 138.

[203] Ex. 137, at PDF p. 1.

[204] *Id.* at 3.

[205] *Id.* at 5.

[206] *Id.* at 2.

[207] *Id.* at 5.

[208] Black & Veatch, *Summary Report regarding development of Kanopolis as a water supply*, at PDF p. 6 (May 13, 1997), Ex. 139.

- To obtain a source comparable to the Ranch, the Cities would likely be forced to use their condemnation powers making the cost to acquire the necessary water rights unpredictable.
- The distances to significant quantities of Ogallala water approach and in most cases exceed the distance to the Ranch. The distances are even greater for Russell than for Hays.
- While there are no recent estimates of infrastructure costs, total costs are not likely to be substantially lower than going to the Ranch.

Kanopolis Reservoir

Operated by the U.S. Army Corps of Engineers ("USACE"), Kanopolis Lake was completed in 1948 on the Smoky Hill River downstream of Ellsworth and about 75 miles east of Hays and 45 miles east of Russell. Kanopolis Reservoir was initially authorized for flood control, irrigation, and recreation purposes. Some storage was later allocated to include water supply.[209]

In 1997, the Cities asked Black & Veatch to study the feasibility of developing Kanopolis Reservoir as a water supply.[210] The Black & Veatch report compared the R9 Ranch, Wilson Reservoir, Kanopolis Reservoir, and groundwater rights in Graham County as potential water sources for the Cities.[211] Kanopolis Reservoir was the most distant alternative considered and would have required the greatest capital investment.[212]

A 2003 report by the Kansas Water Office and the USACE proposed piping raw water from Kanopolis Reservoir to a treatment plant operated by Hays, Russell, or a public wholesale water supply district, as well as other potential alternatives for providing water to the Eastern Smoky Hill and Saline basins.[213] This proposed solution was a regional system, dependent upon numerous potential participants intended to achieve the "operational economies of scale over multiple small systems."[214] The report listed 34 cities and 22 rural watershed districts as potential participants.[215] It recommended that potential participants form a regional public wholesale water supply district and limit the water-supply contracts to "20-year increments."[216] The report

[209] U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 26 (Aug. 2010), Ex. 100.

[210] Black & Veatch, *Summary Report regarding development of Kanopolis as a water supply* (May 13, 1997), Ex. 139.

[211] *Id.* at PDF p. 6.

[212] Bartlett & West, *Water Supply Alternative Review*, at 11 (May 2003), Ex. 125.

[213] Kansas Water Office for U.S. Army Corps of Engineers, *Planning Assistance to States Program Eastern Smoky Hill-Saline Basin Public Water Supply System*, PDF p. 5 (Sept. 2003), Ex. 132.

[214] Kansas Water Office for U.S. Army Corps of Engineers, *Planning Assistance to States Program Eastern Smoky Hill-Saline Basin Public Water Supply System*, PDF p. 13 (Sept. 2003), Ex. 132.

[215] *Id.* at PDF p. 8.

[216] *Id.* at PDF p. 14.

acknowledged the significant capital investment that would be required of Hays and Russell to pipe water up from Kanopolis. Under the plan, the Cities would need new transmission lines for both raw and treated water and additional treatment plants.

At the outset of the study, the Kansas Water Office made it clear that it would "NOT be responsible for pipeline and treatment construction or costs."[217] Moreover, it noted that Kanopolis Lake is not drought proof and that its reliability has worsened because of storage loss from sedimentation and reduced inflow from the Smoky Hill River since 1950.[218]

More recent droughts brought added attention to the lake's water supply issues, as noted by the Kansas Water office and the USACE:

> Specifically of concern are the water releases and lake levels during times of little or no inflow, such as in 2006, and the needs of downstream water users. This concern is reinforced by data on water appropriations and water uses. In the 101 miles of river below Kanopolis Dam to the New Cambria gage, which is located east of the confluence of the Smoky Hill and Saline rivers, there are nearly 300 water rights for an authorized quantity totaling 41,123 acre-feet per year (38.5 MGD) from surface and alluvial groundwater sources. The larger portions of this quantity are appropriations for irrigation, and municipal and industrial use, including the city of Salina.[219]

In 2005, Hays asked Ranson Financial and Burns & McDonnell to evaluate the possible acquisition of Post Rock Rural Water District.[220] Post Rock has experienced financial difficulties and was not making payments on its USDA loans. The report noted that Post Rock has easements and infrastructure in Ellis and Russell Counties, including around Wilson and Kanopolis Lakes. However, its treatment facility was under an abatement order from KDHE, and Post Rock was experiencing a 35% water loss in its distribution system. "[S]ignificant distribution system improvements would be required."[221]

While Post Rock's existing "pipeline easements could be used for a Kanopolis to Hays pipeline[,] . . . the easements may not be in the most favorable alignment and thus may increase pipeline cost, so they offer little value."[222] Moreover, "a significant capital investment will be required in order to achieve compliance with KDHE regulations."[223]

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[217] Public Wholesale Water Supply District No. 15, Meeting Agenda (Jan. 10, 2002), Ex. 140.

[218] *Id.*

[219] U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 27 (Aug. 2010), Ex. 100.

[220] Hays had also hired Black & Veatch to perform a cost for acquiring Post Rock and piping water up from Kanopolis in 1998. The Memorandum only allowed for 645 acre-feet of water at a high cost. Black & Veatch, *Memorandum* (Apr. 6, 1998), Ex. 141.

[221] Burns & McDonnell, *Post Rock Water Supply Alternative Executive Summary*, PDF p. 4 (June 14, 2006), Ex. 142.

[222] *Id.*

[223] *Id.* at PDF p. 5.

The report concludes that it would not be in Hays' best interest to acquire Post Rock, even if the USDA loans were forgiven.[224]

Big Creek Water Banking

In the late 1980s–early 1990s, Black & Veatch developed a plan to use treated effluent from the Hays wastewater treatment plant as part of a recharge and withdrawal program in the Big Creek alluvial aquifer.[225] A portion of the wastewater would be used to irrigate golf courses, parks, and ballfields with the remaining effluent used to recharge the Big Creek aquifer.[226] The plan involved several miles of 10–16 inch pipe through which effluent would travel before discharging into Big Creek.[227] Effluent would also be discharged to a new "recharge basin."[228] Water would be stored in the alluvium for later withdrawal by new wells that would also induce recharge.[229] "The City's initiatives . . . yielded the State's first formal consideration of the concept of Water Banking."[230]

In May 1991, the City presented its operation plan for the water-banking project to DWR,[231] and in 2006, the City retained Bartlett & West to revisit the plan.[232]

The 2006 report expressed several concerns. DWR and KDHE were at odds about how to monitor and measure the quantity and quality of water that would be diverted for reuse. DWR preferred recharge basins that would provide more "calculable accounting"; KDHE preferred discharging the effluent into Big Creek because of "water quality concerns."[233] "This difference in institutional preference was not resolved."[234]

Due to a relatively small net quantity of water[235] (approximately 500 acre-feet[236]); poor aquifer recharge;[237] water quality concerns including for example the existence of "Emerging

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[224] *Id.* at PDF p. 6.

[225] Michael Perrault, *Precious Water: How Hays Plans to Keep it Flowing*, Midwest Contractor, at PDF p. 2 (Sept. 9, 1990), Ex. 143.

[226] Black & Veatch, *Operation Plan for the Big Creek Water Banking Plan*, at PDF p. 28 (Apr. 1993), Ex. 144.

[227] Michael Perrault, *Precious Water: How Hays Plans to Keep it Flowing*, Midwest Contractor, at PDF p. 2 (Sept. 9, 1990), Ex. 143.

[228] Black & Veatch, *Operation Plan for the Big Creek Water Banking Plan*, at PDF p. 13 (Apr. 1993), Ex. 144.

[229] *Id.* at PDF p. 45.

[230] Bartlett & West Engineers, Inc., *Wastewater Reuse Update*, at PDF p. 5 (Aug. 2006), Ex. 145.

[231] Black & Veatch, *Operation Plan for the Big Creek Water Banking Plan* (May 1991), Ex. 146.

[232] Bartlett & West Engineers, Inc., *Wastewater Reuse Update*, at PDF p. 8 (Aug. 2006), Ex. 145.

[233] *Id.*

[234] *Id.*

[235] *Id.* at PDF p. 5.

[236] Michael Perrault, *Precious Water: How Hays Plans to Keep it Flowing*, Midwest Contractor, at PDF p. 4 (Sept. 9, 1990), Ex. 143.

Pollutants of Concern" like pharmaceuticals, personal care products, and endocrine disruptors;[238] and more economical alternatives,[239] the City abandoned the water-banking plan. As noted by Midwest Contractor, "[t]he plan will only bring Hays enough water to match levels the city was deriving [in 1981]. And as with any progressive City, Hays is looking to grow."[240]

However, beginning in the early 1990's, Hays began using treated effluent from its municipal sewage treatment plant for irrigation of recreational areas. As of 2015, Hays irrigates 145 acres with treated effluent, which averages 20% of the total effluent produced on an annual basis.

Saline River

In 1967, Wilson and Company prepared a Report for the City of Russell analyzing a number of alternative sources, including water from the Saline River Valley.[241] Water quality is a major issue. The Saline River cuts down into the Dakota formation causing water quality issues in both surface and groundwater.[242] The report's opening paragraph of the section discussing the Saline River states:

> Very little precise data are available regarding groundwater in the alluvial deposits of the Saline River, but enough is known in a general form to guide a judgment as to the potential supply value of the valley's aquifers. The wells in the river alluvium that have been tested indicate a satisfactory quality of water available at some locations. However, the existing wells are low production, shallow wells used only for domestic or stock use on farms, and their operation does not appreciably affect the normal groundwater migration toward the river channel. The sustained large draft that would be necessary for a municipal supply would almost certainly draw the brackish river water into the aquifer, even if an aquifer could be located that would supply the required demand. Considerations of the quantity and quality of groundwater supplies likely to be found in the Saline River Valley do not indicate that a feasible municipal supply could be developed.[243]

In 1974, Hays asked Layne-Western Co., Inc. to provide a hydrology report on the Saline River Valley area north of Hays for potential additional water supplies.[244] Layne-Western did not

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[237] Black & Veatch, *Operation Plan for the Big Creek Water Banking Plan*, at PDF pp. 16–22 (Apr. 1993), Ex. 147.

[238] Bartlett & West Engineers, Inc., *Wastewater Reuse Update*, at PDF pp. 13–15 (Aug. 2006), Ex. 145.

[239] *Id.* at PDF pp. 5, 17–18.

[240] Michael Perrault, *Precious Water: How Hays Plans to Keep it Flowing*, Midwest Contractor, at PDF p. 5 (Sept. 9, 1990), Ex. 143.

[241] Wilson and Company, *Water Supply Study for the City of Russell*, (Mar. 1967), Ex.126.

[242] *Id.* at PDF p. 13.

[243] *Id.* at PDF p. 60.

[244] Layne-Western Company, Inc., *Groundwater Hydrology Study* (Apr. 1974), Ex. 148.

find sufficient water quantities of acceptable quality to meet the Cities' needs and concluded that "even the best quality test location will deteriorate from the infiltration of water from the Saline River" as the aquifer recharges from that source.[245] The report concluded that "[d]ue to the excessive distance to this valley area from the City of Hays, it does not appear to warrant additional groundwater investigation at this point in time."[246]

Additional water quality testing was conducted in the mid-1980s.[247] And it appears that some consideration may have been given to obtaining water from the Saline River or its alluvium as late as 2001 because Scott Ross, the DWR Water Commissioner at Stockton Field Office, faxed a list of water rights to Lavern Squire, Manager of PWWSD #15.[248]

A recent Bartlett & West, Inc. report recommended further study of this source as an alternative for Russell. The report indicates that Russell could obtain an additional 1,075 acre-feet of water from new water rights in the Saline River alluvium and the Salt Creek alluvium at a projected cost of $7.6 million, or just over $7,000 per acre-foot.[249] The report states that "water quality shouldn't be a significant issue for the City of Russell because the newly constructed EDR WTP has the technology to treat the water from this aquifer."[250]

In addition to the quality issues, all evidence indicates that there is insufficient quantity from this source to meet the Cities' long-term water needs. DWR's July 1, 1993, administrative policy limits new appropriation rights from the Saline River and its alluvium to 50% of the "percent of calculated recharge available" for appropriation.[251] DWR increased the limitation to 75% when it adopted this policy as a regulation in 1994.[252]

Groundwater from the Saline River alluvium is not an economically or technologically feasible alternative source of supply that is available to the Cities. The R9 Ranch was selected over this alternative for a number of reasons but mainly because of significant concerns with water quality, insufficient water quantity, and the need for immediate treatment.

- This source may provide Russell with an alternative but does not address critical needs in Hays. Moreover, the Bartlett & West study is preliminary and does not address limitations on new water rights that could affect the viability of this project.
- There is no contiguous concentration of senior appropriation rights comparable to the R9 Ranch in the Saline River alluvium; water rights from multiple owners would have to be acquired.

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[245] *Id.* at PDF pp. 5–6.

[246] *Id.* at PDF p. 6.

[247] Letter from Black & Veatch to Kenneth Carter, City Manager of Hays (May 13, 1986), Ex. 149.

[248] Ex. 150.

[249] Bartlett & West, Inc., *Water Supply Study for the City of Russell, Kansas* (December 2014), PDF pp. 21–23, 36. Ex. 53.

[250] *Id.* at PDF p. 21.

[251] Ex. 151.

[252] Ex. 152.

- Obtaining water from this source would require the Cities to acquire existing water appropriation rights from irrigators already using this source even though the Cities already own water rights in Edwards County.
- To obtain a source comparable to the Ranch, the Cities would likely be forced to use their condemnation powers, making the cost to acquire the necessary water rights unpredictable.
- New water rights would be subject to minimum desirable streamflow requirements and could affect baseflow into Wilson Lake.
- The operation of K.A.R. 5-3-11 would require the acquisition of additional quantities of water beyond "safe yield."
- Acquiring all of the existing irrigation water rights in the Saline River alluvium in Ellis and Russell counties would, at most, yield only approximately 1,400 acre-feet of water after conversion to Municipal use. The cost of a gathering system, treatment, and conveyance to Hays and Russell would be cost prohibitive.
- Acquiring all of the existing irrigation rights would require in excess of 50 miles of collection piping and 15 to 20 miles of raw water transmission in an area with mostly bedrock and as many as 20 well houses because of the one-half mile limitation on moving points of diversion.
- Much like the Cities' water rights in the Smoky Hill River and its alluvium, water rights in the Saline River alluvium are vulnerable to drought.

Cedar Bluff Reservoir

The headwaters of the Smoky Hill River are located in eastern Colorado.[253] The drainage basin above the Cedar Bluff Reservoir covers 5,530 square miles.[254]

Construction of the Cedar Bluff Reservoir in Trego County was completed in 1951.[255] It is operated by the U.S. Bureau of Reclamation.[256] It was originally authorized for irrigation, flood control, and water supply, with incidental benefits for recreation, fish and wildlife, and water quality.[257] In 1992, Congress reformulated the project as an operating pool for fish, wildlife, and recreation, eliminating irrigation.[258] The elevation of the top of the conservation pool is 2,144.0 above mean sea level but the surface is often below that elevation because of reduced inflow.[259]

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[253] Kansas Water Office, *2009 Kansas Water Plan*, at PDF p. 1 (2009), Ex. 153.

[254] KWO Cedar Bluff Lake, *Reservoir Information Sheet* (2012), Ex. 154.

[255] *Id.*

[256] *2009 Kansas Water Plan*, *supra*, at PDF p. 4.

[257] KWO Cedar Bluff Lake, *Reservoir Information Sheet* (2012), Ex. 154.

[258] U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 25 (2010), Ex. 100.

[259] *Id.*

The construction of the reservoir cut off the flow of water from the west into Ellis and Russell Counties impairing water rights held by both Cities in the Smoky Hill River alluvium. Numerous proposals and studies about Cedar Bluff serving as a potential water supply for the Cities were undertaken over the years, but none of them have resulted in viable projects.

Both Hays and Russell have wellfields in the Smoky Hill River alluvium that depend almost entirely on river flow for recharge. The alluvium is very narrow and has limited saturated thickness creating a storage vessel that can hold a limited quantity of water. Without significant recharge from the River, the water supply is insufficient to meet the Cities' current needs.

Under normal conditions, sustainable yield has been estimated to be roughly 2,000 acre-feet per year from the Hays wellfield. The recent and unprecedented drought that began in late 2010 illustrates the vulnerability that extended periods without river flow can have on the aquifer. The aquifer was nearly full going into the drought. Withdrawals of approximately 1,000 acre-feet per year quickly caused declines that triggered water watch conditions in Hays in as few as 12 months.

A 1984 report prepared by the U.S. Department of Interior titled, *Cedar Bluff Reservoir Water Supply & Operations Study,* assessed inflow to the reservoir to determine what water was available for irrigation and other uses.[260] The study found that inflow was significantly less than when the reservoir was constructed and concluded that Cedar Bluff should no longer be used for irrigation.

A 2003 report by the Kansas Water Office and the U.S. Army Corps of Engineers outlined potential water supplies for the Eastern Smoky Hill-Saline Basin, which includes Hays and Russell.[261] Cedar Bluff was eliminated as a potential water source because of its dismal "historical record." "A 1999 yield analysis indicated a very low yield."[262]

In a January 2003 letter to "concerned citizens," the Kansas Water Office confirmed that it had

> completed an analysis that indicates that **Cedar Bluff Lake is not a viable option for a sustainable, significant, long-term public water supply**. This analysis and public discussion in 1999 led the Kansas legislature to pass a proviso that prohibits the use of Cedar Bluff Lake for public water supply. The Kansas Water Office has no intention of violating this legislative direction by selling public water supply from Cedar Bluff Lake.[263]

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[260] Cedar Bluff Reservoir Water Supply and Operation Studies, at PDF p. 26–27 (May 1984), Ex. 155.

[261] Kansas Water Office for U.S. Army Corps of Engineers, *Planning Assistance to States Program Eastern Smoky Hill-Saline Basin Public Water Supply System*, PDF p. 10 (Sept. 2003), Ex. 132.

[262] Kansas Water Office for U.S. Army Corps of Engineers, *Planning Assistance to States Program Eastern Smoky Hill-Saline Basin Public Water Supply System*, PDF p. 10 (Sept. 2003), Ex. 132.

[263] Letter from Kansas Water Office to Gomer Stukesbary (Jan. 30, 2003) (emphasis added), Ex. 156.

That Cedar Bluff is not a reliable long-term water supply for the Cities is further supported by the fact that DWR has established two IGUCAs along the Smoky Hill River, one downstream from the Cedar Bluff Reservoir[264] and a second upstream from the Reservoir.[265]

And as noted in a 2010 Draft Environmental Report by the U.S. Army Corps of Engineers and the Kansas Water Office:

> Results of an analysis by [the Kansas Water Office] to determine the water supply yield that can be expected during a two percent chance drought . . . indicated Cedar Bluff is not suitable for storage of water under the Water Marketing Program . . . . In addition, all of the streams and alluvial corridors in the Basin are closed or restricted for new water appropriations.[266]

The nonviability of Cedar Bluff as a long-term municipal water source is further demonstrated by problems with the use of Russell's storage right in Cedar Bluff Reservoir, DWR File 7,628. Russell relies on the Smoky Hill River to deliver this water to Pfeiffer via the streambed. Significant losses have generally occurred during requested releases because of infiltration, evaporation, and direct pumping by others along the river upstream of the Russell wellfield.[267] Moreover, releases must make it past the Hays wellfield to reach Pfeiffer. This has not been possible during prolonged droughts.

In an April 28, 2003 letter from the Hays City Attorney, John Bird, to Gov. Sebelius, Hays threatened to file an impairment lawsuit against the State if something was not done about the impact Cedar Bluff has on the downstream alluvium.[268] That letter resulted in an *Artificial Recharge Pool Operations Agreement*,[269] which acknowledges the hydraulic connection between streamflow in the Smoky Hill River and the adjoining alluvium. The purpose of the agreement is to increase artificial recharge for the benefit of all water users in the valley.

While the *Artificial Recharge Pool Operations Agreement* has improved management of flows in the River during normal conditions, the recent drought has demonstrated that it is insufficient to address the Cities' water needs.

A recent Bartlett & West, Inc. report reviewed numerous previous studies and concluded that Cedar Bluff is not a viable option for additional water for Russell.[270]

Cedar Bluff Lake is not an economically or technologically feasible alternative source of supply that is available to the Cities. The R9 Ranch was selected over this alternative for all of the reasons discussed above.

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[264] Lower Smoky Hill IGUCA, Exs. 157–158.

[265] Upper Smoky Hill IGUCA, Ex. 159.

[266] U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 25 (Aug. 2010), Ex. 100.

[267] *Id.*

[268] Letter from John T. Bird to Gov. Kathleen Sebelius (Apr. 28, 2003), Ex. 160.

[269] Cedar Bluff Reservoir Artificial Recharge Pool Operations Agreement (Sept. 22, 2004), Ex. 161.

[270] Bartlett & West, Inc., *Water Supply Study for the City of Russell, Kansas* (December 2014), pp. 19–21, Ex. 53.

Cedar Bluff Cattle Feeders Water Rights[271]

In 2008, Burns & McDonnell evaluated water rights owned by Cedar Bluff Cattle Feeders (CBCF), which had expressed an interest in selling land and facilities, including 904 acre-feet of water rights.[272] In 2005, the Kansas Department of Agriculture, DWR, KWO, and the City of Hays jointly agreed, in a memorandum of understanding, to evaluate potential purchase and retirement of water rights with the goal of reducing water use impacts in the Smoky Hill IGUCA.[273] By purchasing the CBCF water rights, the Cities hoped to lessen the impact that evapotranspiration and upstream water use had on their wellfields.[274]

Burns & McDonnell's report concluded that retiring the CBCF water rights would have a "positive yet limited benefit to the City of Hays."[275] Moreover, CBCF's asking price for the property was excessive. A state appraisal valued the property at approximately $1 million and the Burns & McDonnell Report valued the water rights alone between $400,000–$468,000, with the caveat that these prices were "somewhat inflated . . . considering that a portion of the water right is for stock watering and because a high percentage of the property is uncultivated and thus not irrigated."[276] The owners were asking $6,000,000.[277]

Acquisition of water rights from Cedar Bluff Cattle Feeders is not an economically or technologically feasible alternative source of supply that is available to the Cities. The R9 Ranch was selected over this alternative because of the high price, small quantity, and limited benefit of acquiring these water rights.

Walnut Creek, Pawnee River, and the Middle Arkansas River

In a 1967 Report prepared for Russell,[278] Wilson and Company discussed the potential development of a wellfield in the Arkansas River Valley approximately five miles northwest of Great Bend, Kansas, along Walnut Creek. The report concluded that this source should not be pursued unless other options were not feasible.[279]

In the late 1980s and early 1990s, Black and Veatch studied the "Big Bend" area of the Arkansas River looking for potential wellfield sites for Hays.[280] At the time, Hays was looking for about 3,000 acre-feet.[281] Black and Veatch proposed development of wellfields at three

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[271] Burns & McDonnell, *Cedar Bluff Cattle Feeders Water Right Evaluation* (June 30, 2008), Ex. 162.

[272] *Id.* at PDF p. 1.

[273] *Id.*

[274] *Id.* at PDF pp. 2–3.

[275] *Id.* at 6–7.

[276] *Id.* at PDF p. 5–6.

[277] City of Hays City Commission Work Session Agenda, at PDF p. 18 (July 21, 2011), Ex. 163.

[278] Wilson & Co., *Water Supply Study*, (Mar. 1967), Ex. 126.

[279] *Id.* at PDF p. 76.

[280] Black & Veatch, *Development of Big Bend Supply*, at PDF p. 2 (Jan. 3, 1990), Ex. 164.

[281] *Id.* at PDF p. 2.

alternate locations: the Walnut Creek basin, the Pawnee River basin, and an area southwest of Great Bend, Kansas. That project was slated to cost $27 million.[282]

In 1993 and early 1994, the City was contacted by Central Kansas Utilities from Great Bend with an offer to sell water to Hays at $2.65 per 1,000 gallons or approximately $864 per acre-foot.[283] This option was not pursued because the water would be subject to price increases.[284]

Walnut Creek

The Walnut Creek alluvium, the productive area closest to Hays, is closed to further development. And the Creek discharges into the Cheyenne Bottom Wildlife Refuge, an environmentally sensitive area[285] and important migratory bird stopover.[286]

In 1948 and 1954, the Kansas Fish and Game Commission (now the Kansas Department of Wildlife, Parks and Tourism) obtained surface-water appropriation rights from Walnut Creek and the Arkansas River.[287] Water Right File No. 439, priority date October 18, 1948, was certified on September 13, 1990, and permits the diversion of 19,175 acre-feet per year of Walnut Creek Surface water at 500 cfs.[288]

Water Right File No. 2,427, priority date April 9, 1954, was certified on August 15, 2000, permitting the diversion of up to 18,185 acre-feet per year of surface water from the Arkansas River at 80 cfs.[289]

In September 1989, the Chief Engineer adopted Administrative Policy No. 89-10, entitled, *Availability of surface water and groundwater from Walnut Creek, its tributaries and their valley alluviums and other hydraulically connected aquifers*.[290] The Policy stated that applications for new permits to appropriate surface water from Walnut Creek or its tributaries or groundwater from aquifers that are hydraulically connected to Walnut Creek or its tributaries received on or after that date would be accepted for filing and given a file number but would be denied because approval would prejudicially and unreasonably affect the public interest or impair use under existing water rights.[291]

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[282] *Id.* at PDF p. 8.

[283] Water Group Subcommittee Meeting, *Minutes*, at PDF p. 7 (Nov. 1, 1993), Ex. 165.

[284] *Id.*

[285] Black & Veatch, Memorandum, *Development of Big Bend Supply*, at PDF p. 1 (Jan. 3, 1990), Ex. 164.

[286] John C. Peck, *Property Rights in Groundwater—Some Lessons from the Kansas Experience,* 12 KAN. J. L. & PUB. POL'Y 493, 499 (2003).

[287] *Id.*

[288] *Id.* at endnote 51.

[289] *Id.*

[290] Ex. 166.

[291] *Id.*

As of May 6, 1991, 504 water rights, including 82 vested rights, permitted the diversion of up to 71,724.64 acre-feet of surface and groundwater each year from the Walnut Creek basin.[292]

DWR's 1989 Report and Policy were precursors to public hearings held in December of 1990 that resulted in an IGUCA Order issued on January 29, 1992.[293] The Walnut Creek IGUCA has been amended but remains in place.[294]

Pawnee River

Black and Veatch reported that the next closest area, the Pawnee River alluvium, is also closed to new appropriations,[295] but that does not appear to have been the case. New permits were possible in GMD5 until March 16, 2001, if the ever-changing regulatory criteria could be met.[296] However, the GMD indicated that new water rights would be difficult to obtain in the Pawnee River Basin.[297]

Even though the area was not technically closed to new appropriations at the time of the Black and Veatch Report, the area was likely over appropriated. And if it was not over appropriated then, it is now. On July 8, 1981, the Chief Engineer issued an IGUCA order for the Pawnee River Basin from Larned, Kansas, west to the Pawnee County line making the requirements for obtaining a new water right more onerous.[298] On September 13, 1985, the Chief Engineer issued another IGUCA Order further tightening the restrictions.[299]

On March 16, 2001, the Chief Engineer closed all of GMD5 to new appropriations.[300] This regulation closed the Pawnee basin in Pawnee County. On October 25, 2002, the Pawnee and Buckner drainage basins outside of the GMD were closed to new appropriations of water by regulation.[301]

On June 18, 2007, the Chief Engineer issued a third Order expanding the IGUCA into Hodgeman and Ness Counties to include the Pawnee River, Buckner Creek, and Sawlog Creek basins.[302] That IGUCA proceeding had been bifurcated with Phase I to focus on whether an IGUCA was needed and, if so, Phase II would determine the appropriate controls. The 2007 Order concluded that controls were needed and ordered that a prehearing conference be held to

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[292] Walnut Creek IGUCA, Ex. 167.

[293] *Id.*

[294] Supplemental Order to Walnut Creek IGUCA, Ex. 168; Amended Order, Ex. 169; Summary Supplemental Amended Order (III), Ex. 170.

[295] Black & Veatch, *Development of Big Bend Supply*, at PDF p. 1 (Jan. 3, 1990), Ex. 164. *See also* the three IGUCA orders issued by DWR, Exs. 171–173.

[296] Vol. 20, No. 09 Kan. Reg. 294–95 (Mar. 1, 2001).

[297] Black & Veatch, *Development of Big Bend Supply*, at PDF p. 2 (Jan. 3, 1990), Ex. 164.

[298] Pawnee River Basin IGUCA, Ex. 171.

[299] Order reducing safe yield for Pawnee River Basin IGUCA, Ex. 172.

[300] Vol. 20, No. 09 Kan. Reg. 294–95 (Mar. 1, 2001) (amending K.A.R. 5-24-4).

[301] K.A.R. 5-3-26.

[302] Order expanding Pawnee River Basin IGUCA, Ex. 173.

establish the Phase II process. While Phase II has not begun, and the Chief Engineer who issued that Order has retired, the possibility of an IGUCA similar to the Walnut Creek Order remains.

Middle Arkansas River Basin near Great Bend

As noted above there have been several proposals to purchase water near Great Bend, Kansas. While there are no IGUCAs in place, most of the other reasons apply in this basin with equal force.

The Walnut Creek, Pawnee River, and Middle Arkansas River basins are not economically or technologically feasible alternative sources of supply available to the Cities. The R9 Ranch was selected over these alternatives for a number of reasons, including:

- The Walnut Creek IGUCA Order, and its progeny, reduces the quantity of water available from valid water rights in a manner that is inconsistent with the prior appropriation doctrine and therefore in violation of Kansas law.303 However, the time limit for challenging the Order has long since expired. Acquisition of such water rights carries an unacceptable level of risk.
- The open-ended IGUCA Order in the Pawnee Buckner basin places a cloud over the water rights in this basin. The Cities do not know whether, how, or when these proceedings will resume and the outcome of those proceedings is unpredictable.
- Even if priority was respected, the Kansas Department of Wildlife, Parks and Tourism holds large and very senior water appropriation rights that are supplied from all three basins. The Cities would have to acquire vested rights and very senior appropriation rights to be assured that sufficient water would be available to meet their long-term needs—an unrealistic prospect.
- The areas are now closed to new appropriations so the Cities would have to acquire existing water rights in the basin from irrigators already using these sources when the Cities already own water rights in Edwards County.
- Even if it was reasonable to acquire water rights in these basins, there is no contiguous concentration of senior appropriation rights comparable to the R9 Ranch; water rights from multiple owners would need to be acquired.
- To obtain a source comparable to the Ranch, the Cities would likely be forced to use their condemnation powers making the cost to acquire existing water rights unpredictable.

[303] K.S.A. 82a-1039 specifically states that nothing in the IGUCA provisions—K.S.A. 82a-1036 – 82a-1038—"shall be construed as ***limiting or affecting any duty or power of the chief engineer*** granted pursuant to the Kansas water appropriation act." (Emphasis added.) No "duty or power" is more clearly spelled out in the Kansas water appropriation act than the duty to enforce priority of water rights. *See, e.g.*, K.S.A. 82a-706, K.S.A. 82a-706b, K.S.A. 82a-706e, K.S.A. 82a-707(b), K.S.A. 82a-707(c), K.S.A. 82a-708b, and K.S.A. 82a-716.

- Taking water from any of these basins could harm Cheyenne Bottoms, which would be politically untenable in Hays, Russell, and the surrounding areas.[304]
- While there are no recent estimates of infrastructure costs, they are not likely to be substantially lower than going to the Ranch. Even if they were lower, there is no reason to believe that they would offset the costs to acquire the water rights.

Waconda Lake

Waconda Lake, also known as the Glen Elder Reservoir, is a Bureau of Reclamation facility located in the Solomon River Basin in Mitchell and Osborne Counties approximately 63 miles northeast of Hays and 45 miles northeast of Russell. Waconda Lake is a key flood control structure in the Kansas River Basin and "provides a high degree of protection to the lower Solomon River Valley."[305]

In 1991, Hays filed an application to appropriate 15,000 acre-feet of water from Waconda Lake, File 40,406.[306] DWR dismissed the application on August 12, 2004.[307]

In 2001, the U.S. Army Corps of Engineers performed a high-level feasibility analysis of several potential water supply alternatives for the Cities including Waconda Lake.[308] It noted a significant decrease in inflow to Waconda Lake since the mid-1950s and the significant decrease in water supply that Waconda has provided to the Solomon River in the subsequent decades.[309] The Corps concluded that "Waconda Lake water from the Solomon River Basin is considered to have limited potential to address the municipal water supply needs of the Smoky Hill River Basin."

This problem is exacerbated by the highly sought-after status of Waconda Lake water. For example, already in 1997, the Kansas Department of Wildlife and Parks pressed to "be at the front of the line if water storage becomes available at Waconda Lake. Their purpose: to protect recreation interests at the north-central Kansas Lake from other users and a possible lowering of water levels."[310]

The Kansas Water Office and the USACE concluded as follows:

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[304] Obtaining water from any source is generally unpopular with residents in the source area. The Cities understand that they would likely encounter opposition from area residents at any new source. However, taking water that is needed at Cheyenne Bottoms would likely result in opposition from Hays and Russell residents.

[305] U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 27–28 (Aug. 2010), Ex. 100.

[306] Information from DWR's WIMAS database (Dec. 12, 2015), Ex. 174.

[307] *Id.*

[308] U.S. Army Corps of Engineers, *Wilson Lake Water Supply Study*, at PDF pp. 29–30 (Aug. 2010), Ex. 100.

[309] *Id.* at PDF p. 28–29.

[310] Hays Daily News, *Glen Elder is Focus of Water Meeting* (Nov. 19, 1997), Ex. 175.

> Since the mid-1950s, the surface water supply in the Solomon River has decreased significantly. For example, the 10-year moving average inflow to Webster Reservoir has decreased from 81,800 acre-feet in 1955 to 11,700 acre-feet in 1992 (KWO 2009). Reduced stream flow and runoff into streams in the Solomon River Basin have been reflected in lower water levels in Webster Reservoir and Kirwin Reservoir. Both of these reservoirs discharge water into Waconda. Waconda Reservoir is currently used for municipal water supply (2,000 acre-feet), and 15,170 acre-feet is currently allocated to the Glen Elder Irrigation District (KWO 2009). If access to the water could be obtained through a reallocation from irrigation uses, it would then have to be transported long distances to a treatment plant in Russell or Hays. In addition, river inflow to the reservoir is declining over time. As a result, Waconda Lake water from the Solomon River Basin is considered to have limited potential to address the municipal water supply needs of the Smoky Hill River Basin.[311]

As a practical matter, diverting water to the Cities from Waconda Lake is not economically feasible. Because Waconda Lake is a federal body of water, DWR requires a contract with the federal government before acting on any application proposing storage or use of water from the reservoir.[312] Acquisition of storage in Waconda from the Bureau of Reclamation would face some of the same obstacles and challenges discussed under the Wilson Lake heading above.

In 1993, the Hays Water Group Subcommittee concluded that Waconda "is a very high cost option due to the fact that no intermediate options are available. Thus, to access any of this water the entire pipeline must be laid with very little opportunity to add to the City's water supplies in the interim. Phasing this option would be rather difficult."[313]

Even though Waconda was not considered to be a viable source, the application remained on file with DWR. In 2002, the PWWSD #15 recommended that the Cities release their application for a water appropriation right from Waconda and the Cities concurred.[314]

Waconda is not an economically or technologically feasible alternative source of supply that is available to the Cities. The R9 Ranch was selected over this alternative for all of the reasons discussed above.

Pikitanoi Water Project

In the late 1990s, the Kickapoo Tribe of Kansas sought to develop a relationship between the Kickapoo Indian Reservation in northeast Kansas and PWWSD #15, among other public agencies.[315] The Kickapoo tribe proposed an ambitious water-supply plan called the Pikitanoi

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[311] U.S. Army Corps of Engineers and the Kansas Water Office, *Wilson Lake Water Supply Study Draft Environmental Report*, at PDF p. 28–29 (Aug. 2010), Ex. 100.

[312] Letter from DWR to the Ellis County Coalition (Oct. 17, 1997), Ex. 176.

[313] Hays Water Group Subcommittee Meeting, *Minutes*, at PDF p. 8 (Nov. 1, 1993), Ex.165.

[314] Letter from PWWSD #15 to the Cities of Hays and Russell (Jan. 31, 2002), Ex. 177.

[315] Memorandum from John Thomas, Chairman of the Kickapoo Tribe in Kansas, to Penny Postoak regarding the draft Pikitanoi Rural Water Bill, at PDF p. 1 (Jan. 22, 1999), Ex. 178.

Water Project and proposed extending the Pikitanoi "core pipeline from the western boundary of the Kickapoo Reservation to western Kansas."[316] It was anticipated that a majority of the project would be financed by federal sources.[317] This "core pipeline," was never constructed.

The plan called for the construction of 304 miles of transmission pipeline to divert water from the Missouri River under Tribal reserved water rights[318] to serve the Reservation and other interested parties.[319]

Exploratory discussions were held between PWWSD # 15 and the Kickapoo Tribe relating to potentially supplying Ellis and Russell Counties with water. Numerous studies were proposed.[320] The Kansas Water Office issued a report discussing the project in February 1999, which noted that the project would produce 5,086 acre-feet per year, but the KWO's study did not include Hays or Russell, extending only as far east as Riley County.[321]

The Kickapoo Tribe asked their congressional delegation to include $500,000 in the U.S. Army Corps of Engineers' FY 2000 budget for a "Pikitanoi Special Study."[322] It appears that Congress declined to allocate the requested funds.[323]

The project was apparently abandoned. In early 2000, PWWSD #15 advised the Pikitanoi Executive Committee that the Cities were withdrawing from the project in favor of "regionalized opportunities."[324] In a 2003 letter to the Office of the Governor, the Director of the Kansas Water Office noted that the Pikitanoi project was "too expensive."[325]

Southside Ditch Association (1997)

In 1997, Hays and Russell were contacted by a real estate broker representing a group of land owners called the Southside Ditch Association. They owned vested surface-water rights in

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[316] Memorandum from Mario Gonzalez to Steve Cadue, *et al.*, *Alternative Drafts of Proposed Pikitanoi Bill for Meeting with State Water Officials* at PDF p. 2 (Dec. 4, 1998), Ex. 178.

[317] *See* Brochure regarding the Pikitanoi Water Project, at PDF p. 47 (noting that "up to 80% of the costs for the non-Indian portion could be paid by federal funds"), Ex. 178.

[318] When the United States reserves land for an Indian Reservation, and other uses, it reserves enough water to carry out the reservations purpose by implication. *Winters v. United States,* 207 U.S. 564 (1908); *Arizona v. California,* 373 U.S. 546 (1963). Federal reserved water rights are distinguished from water reservation rights held by the Kansas Water Office pursuant to K.S.A. 82a-1303.

[319] Memorandum from Mario Gonzalez to members of the Pikitanoi Executive Committee, at PDF pp. 2, 56 (Dec. 4, 1998), Ex. 178.

[320] *See, e.g.*, Memorandum from Mario Gonzalez to Mike Watson regarding Pikitanoi Feasibility Study, PDF p. 46 (Jan. 14, 1999), Ex. 178.

[321] Kansas Water Office, *The Pikitanoi Report*, at PDF pp. 4–5 (Feb. 25, 1999), Ex. 179.

[322] Letter from Fred Thomas, Chairman of the Kickapoo Tribe in Kansas, to numerous congresspersons, PDF pp. 131–42 (Aug. 13, 1999), Ex. 178.

[323] *Id.* at PDF p. 143–44.

[324] Letter from Lavern D. Squier to Jim Cobler, PDF p. 158–59 (Feb. 14, 2000), Ex. 178.

[325] Letter from Clark Duffy to Kathy Greenlee, PDF p. 2 (Feb. 13, 2003), Ex. 180.

the Arkansas River west of Lakin, Kansas and were willing to sell 20,000 acre-feet for $2,000.00 per acre-foot.[326] The Cities did not pursue this option because of the high price and the distance. It is approximately 120 miles from Lakin to Hays and 166 miles by road. The distance from Lakin to Russell is greater.

Further investigation would have indicated that surface water in the Arkansas River is an unreliable source and would be high in chlorides.[327] A cursory investigation revealed that water from the Arkansas River in Southwest Kansas is neither economically nor technologically feasible as an alternative long-term source of supply for the Cities.

[326] Letter from Doug Wildin & Associates to Paul Montoia (Mar. 24, 1997), Ex. 181.

[327] Kan. Geological Survey, *Ground-Water Recharge in the Upper Arkansas River Corridor in Sw. Kan.*, at 23 (July 2002), Ex. 182. ("The salinity of ground waters in the High Plains aquifer has increased substantially during the last half of the 20th Century in the Arkansas River corridor as a result of saline recharge derived from the river.")