Resolving the Quivira Impairment

Kansas Department of Agriculture–Division of Water Resources

August 2019

Current Status of Quivira Impairment

- On July 30, 2019, Chief Engineer David Barfield provided a formal response to the GMD No. 5 Local Enhanced Management Area (LEMA) plan aimed to resolve the Quivira impairment, stating he was unable to move forward with their request to initiate proceedings to consider the plan as it failed to meet statutory requirements.
- Per their request, he also summarized a listing of necessary elements for a LEMA to resolve the impairment, should they desire to try again.
- Finally, and most significantly, Chief Engineer Barfield announced his intention to develop administrative orders by approx. September 1, 2019, to be effective January 1, 2020, to implement water use reductions in the basin to begin addressing the Quivira impairment, and in particular, the ongoing declines in streamflows into the Refuge with its reductions in water quantity and water quality.
    - These orders are the initial step of a three-pronged solution to the impairment. The other two components are:
        - A proposed augmentation project.
        - The retirement of 4400 acre-feet of use near the stream (Zone D).
    - To maximize flexibility in use, DWR will work with local water users to develop a Water Conservation Area (WCA) to create multi-year allocations and allow movement of allocations between water rights.
    - While required water use reductions will be from the authorized quantity, they will vary among water users based on the seniority of their water rights (with older rights getting larger allocations) and their historic use. The reductions will average under 15% from long-term use.
    - Attached is a map showing the affected area.
- A public meeting is anticipated during mid-September.
- More information related to this matter can be found at the following web pages:
    - Quivira impairment page: agriculture.ks.gov/Quivira

Administrative orders can help avoid going to court

- With a nearly three-year-old final report from KDA–DWR finding impairment and a clear system of water right priority — "first in time is first in right" — the court system will likely have very little trouble deciding that a significant number of junior water rights should be shut off to ensure that the senior water right is satisfied. A court is not required to use the most flexible solution or the solution that is best for junior water rights.

- The courts do not have access to the LEMA, IGUCA, or WCA tools to help soften the effects of priority administration, and may not be inclined to trust that a future augmentation project would relieve some of the impairment until it is in place. KDA–DWR believes that all parties should work very hard to avoid the court system.
- The Chief Engineer's action is needed to halt the ongoing declines in streamflow which diminish the amount of water available to the Refuge and its quality.
- See attached figures which show: a) the groundwater model's estimates of historic and future reliable Rattlesnake streamflows (baseflows) at the current level of groundwater pumping, which will be 0 or near-0 in the future in most years, and b) a graph showing the degrading water quality at Zenith as the quantity of streamflow diminishes.

History of the Quivira Impairment

- For decades, the U.S. Fish and Wildlife Service expressed concern that its senior water right on Rattlesnake Creek in the Quivira National Wildlife Refuge, a wetland of international significance and part of the central U.S. flyway, was being impaired by junior groundwater pumping.
- The Service's water right for Quivira has a priority that dates back to 1957 and allows it to divert up to 14,632 acre-feet per year at a maximum rate of 300 cubic feet per second (cfs).
- After decades of voluntary efforts to resolve its concerns were unsatisfactory, the Service filed an impairment complaint with KDA-DWR in April of 2013. KDA-DWR then began its investigation of the alleged impairment.
- In 2016, KDA–DWR found that junior groundwater pumping has impaired the Service from exercising its senior water right for Quivira .
- Since then, KDA has worked with GMD5 to find a solution to the Quivira impairment that minimizes the adverse effect to the region's economy. During that time, no water administration occurred.

What remedy has been determined to be sufficient?

Modest reductions in groundwater use, averaging approximately 15 percent, along with an augmentation project and 4,400 acre-feet of targeted reductions will resolve the impairment and protect the region's economy for at least a generation.

- Reductions in groundwater use will be achieved via the administrative orders which will be issued in September 2019. While required water use reductions will vary among water users based on the seniority of their water rights (with older rights getting smaller reductions) and their historic use, the reductions will average approx. 15% from long-term use.
- Augmentation: The statute dealing with the administering of water rights was amended in 2015 to allow augmentation specifically, and only in Rattlesnake Creek, to be considered in addressing impairment. At GMD5's request, and to provide additional assurance to the basin, the chief engineer has signed a memorandum of understanding (MOU) with GMD5 reaffirming KDA's commitment to give full credit for augmentation that addresses the impairment.
- The retirement of 4400 acre-feet of use in the high-impact area (Zone D).

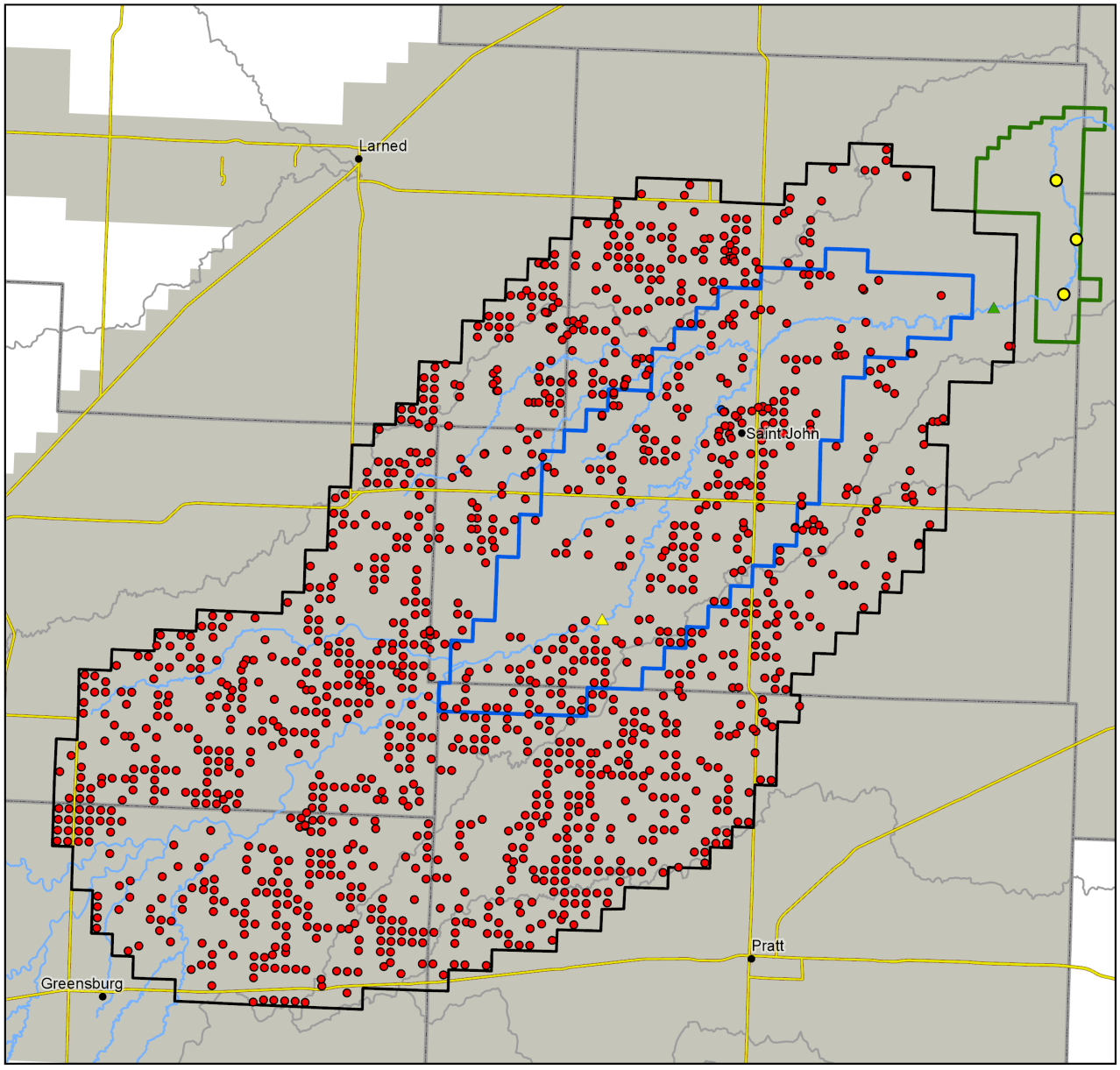
LEMA solution has not been successful

- In August 2017, GMD5 expressed its desire to use a LEMA plan to remedy the Quivira impairment including the following: augmentation at a minimum of 15 cfs; pumping reductions via removal of end guns as well as additional voluntary measures; and 4,400 acre-feet of focused reductions in the high-impact area where 40% or more of the water pumped comes from Rattlesnake Creek streamflow.
- In September 2017, KDA–DWR informed GMD5 that its plan to address the impairment with a LEMA would require GMD5 to commit to an allowable level of pumping in the first five years of the LEMA, and then implement reduced water allocations in the second five years if the allowable pumping was exceeded.
- After nearly two years of work on the LEMA concept, KDA and GMD5 have been unable to agree on a LEMA plan that resolves the impairment.

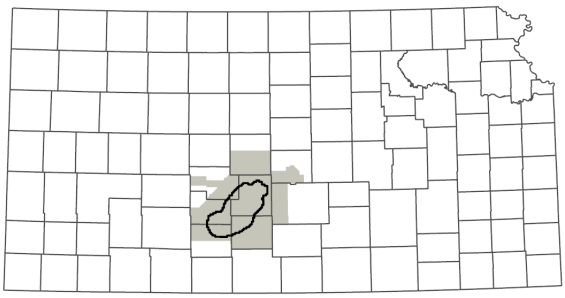
Basic Water Rights in Kansas

- A founding principle of Kansas water law is “first in time, first in right.”
- Water rights are assigned a priority date to establish who has first right to water, which allows the Division of Water Resources to protect a water resource for those who established their rights first from those who came along later. In times of plenty, there may be enough water to satisfy all water rights.
- However, in times of water scarcity, those who have earlier, or more senior, water rights are entitled to satisfy those rights before those who have rights junior to them.
- The procedures for distributing water between users when a more senior right is being impaired are outlined in Kansas law (K.S.A. 82a-706b) and regulations (K.A.R. 5-4-1).

Points of Diversion under Junior Water Rights Found to be Interfering with Quivira's Water Right



0 5 10 15 Miles



WR 7,571
Groundwater
Surface water
Zenith station
Macksville station
Zone A
Zone D
Quivira NWR
Rattlesnake Creek and tributaries
Surface water basin
Highway
County
GMD No. 5

N

Quivira NWR File No. 7,571
Priority Date: August 15, 1957

Kansas Department of Agriculture
Division of Water Resources
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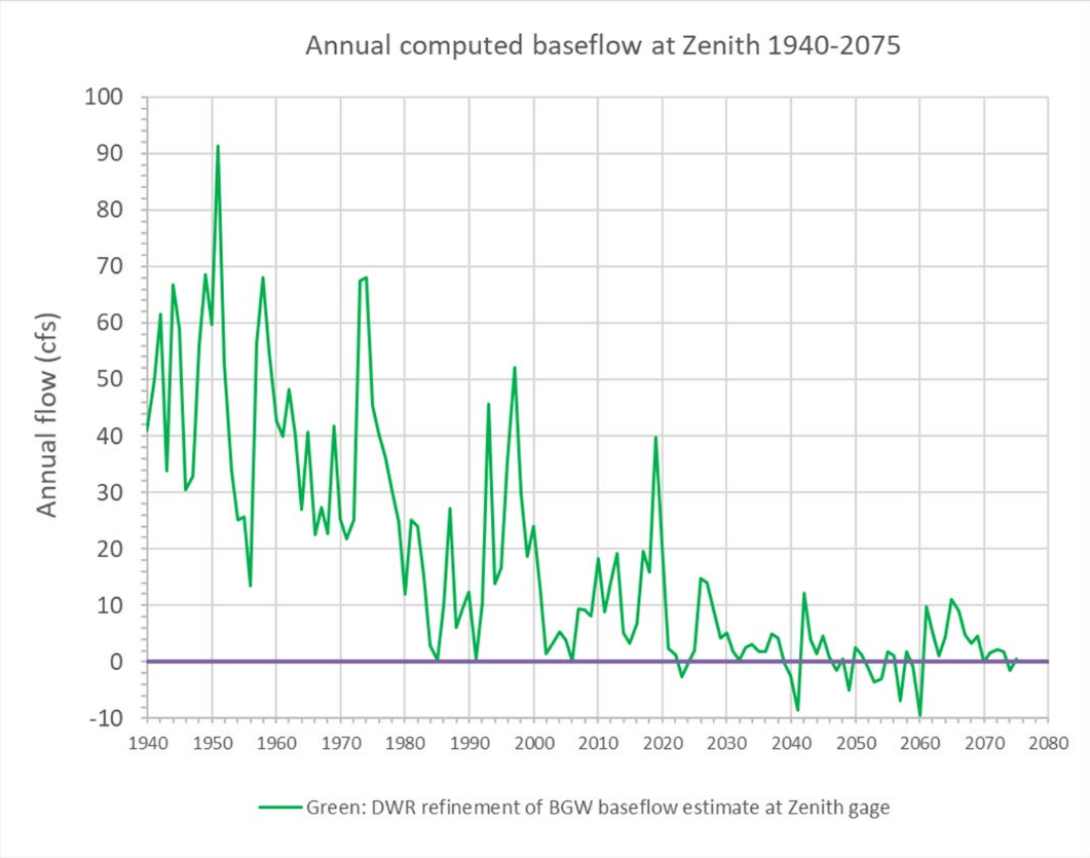
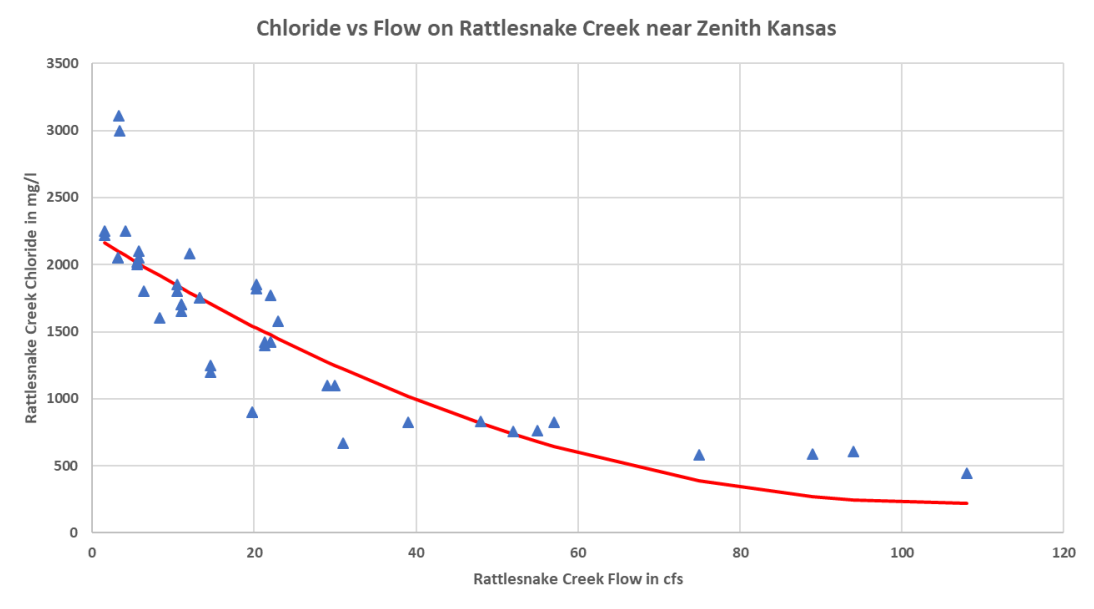

Annual computed baseflow at Zenith 1940-2075
Annual flow (cfs)
100
90
80
70
60
50
40
30
20
10
0
-10
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080
Green: DWR refinement of BGW baseflow estimate at Zenith gage


Chloride vs Flow on Rattlesnake Creek near Zenith Kansas
Rattlesnake Creek Chloride in mg/l
3500
3000
2500
2000
1500
1000
500
0
0
20
40
60
80
100
120
Rattlesnake Creek Flow in cfs