



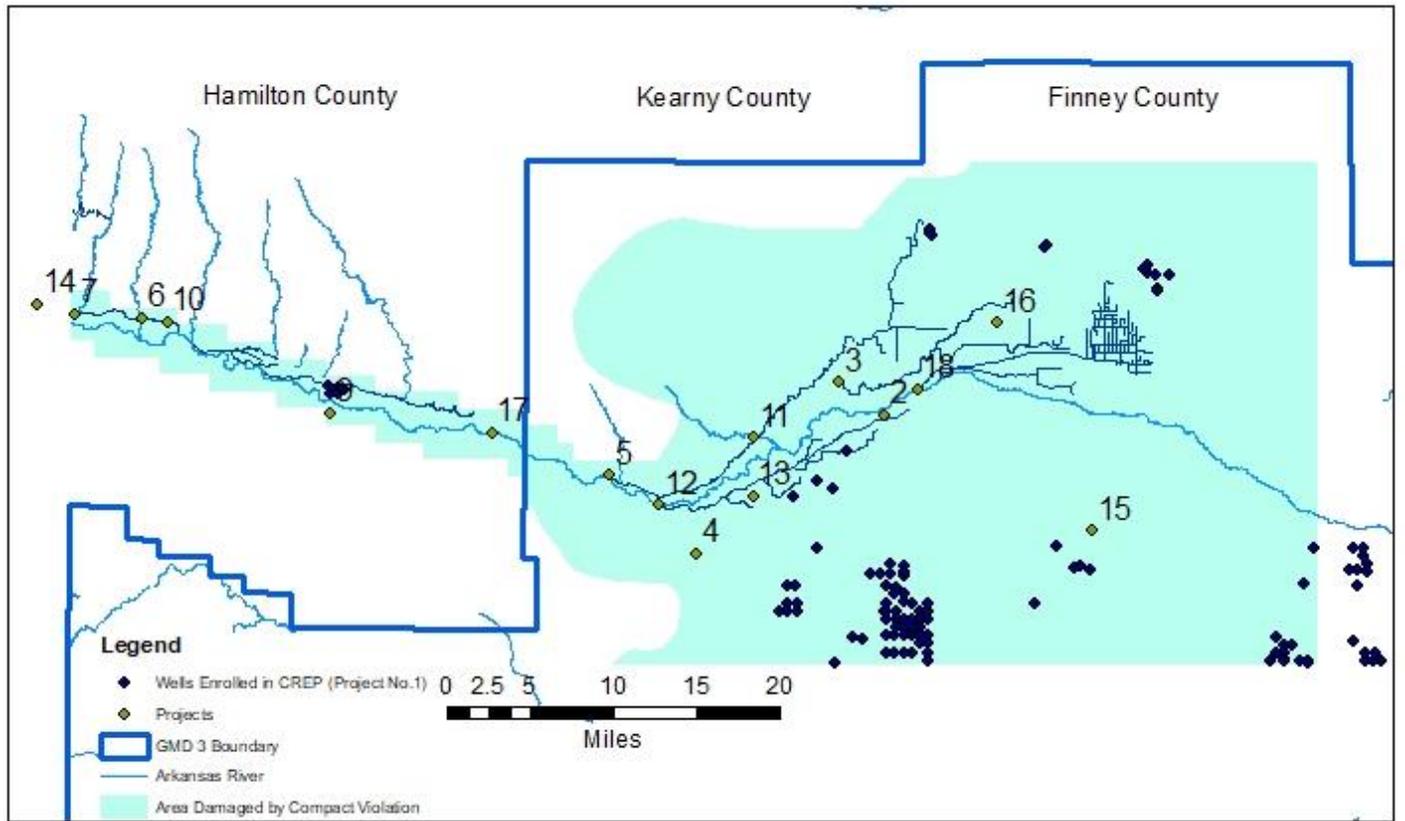
REPORT TO THE KANSAS LEGISLATURE

GMD3 Western Water Conservation Projects Fund

Activity and Related Concerns in 2020

from
Southwest Kansas Groundwater Management District 3(GMD3)
Kansas Water Office (KWO) Contract Number 08-0129

Financial Statement for 2020. The GMD3 Western Water Conservation Projects (WWCP) Fund began year 2020 with \$2,346,729 and ended the year with \$971,901. There were expenditures totaling \$1,399,195 and income of \$24,367. Expenditures included a 3% fiduciary services charge of \$41,245 paid to the GMD3 general fund. Expenditures in 2020 were leveraged to support the Kansas Conservation Reserve Enhancement Program (CREP) state obligations and an additional \$300,000 Reclamation WaterSMART conservation grant to improve the Farmers Ditch and water delivery efficiencies.



The GMD3 WWCP Fund finances water management projects in the area of Kansas directly affected by past interstate compact violations. Numbers on the map above correspond to the projects list enclosed. This activity returns a fraction of the cash damage award from *KS v. CO* to the area that suffers the effects as an investment in local legendary leadership and the future of Kansas.

Background



As a result of litigation filed in the United States Supreme Court (*Kansas v. Colorado, No. 105 Original*), the

State of Kansas received more than \$34.7 million in damage award from the State of Colorado for actual Kansas losses to crops and fields in Southwest Kansas, including interest. The cash damage award was quantified from effects on Kansans for certain Colorado violations of the Arkansas River Compact (K.S.A. 82a-520). Compact law established an Arkansas River Compact Administration (ARCA) body with representatives from Colorado and Kansas and a federal non-voting chair. The cash damages from the litigation first paid back the state \$20 million litigation cost, with 1/3 of the remainder going to the Kansas Water Plan used to form the Kansas CREP, and 2/3 to the actual affected area in southwest Kansas in the form of the Water Conservation Projects Fund. Projects funded in whole or in part by the Fund must be in the area directly impacted by the Arkansas River Compact past violations and meet eligibility requirements and goals in K.S.A. 82a-1803 and 2008 Senate Bill 534. For more than a century, local stakeholders have identified job one to be protecting the useable water supply from the incremental depletion resulting from upstream water development while improving use of the shared local water resources. From the guiding principles in the 50 Year Kansas Water Vision, locally driven solutions have the best chance of providing long term solutions to water problems.

50 Year Kansas Water Vision, locally driven solutions have the best chance of providing long term solutions to water problems.



A local water projects platform model that works for Kansas.

A three-leg stool administrative platform for the GMD3 WWCP Fund was developed to stand on the following legs: (1) a strategic stakeholder advisory group; (2) the GMD3 Board governance and management program; and (3) state staff advice and review. Projects for funding are developed by the advisory committee with recommendations made to the GMD3 governing body for project and funding approval. Once approved by the board per the original grant agreement, a request is made to the KWO Director for project approval as being beneficial and consistent with the purposes of the GMD3 WWCP Fund, in consultation with the Chief Engineer. Expertise in the advisory committee is uniquely suited to carry out the purposes of the GMD3 WWCP Fund. The activity provides a proven model for other funding protection to Kansas local leadership with a multi-generational understanding of the local water infrastructure and interstate water issues to support review and ensure a successful completion of priority projects at the least cost and with the best results.



Local water leadership for the GMD3 WWCP Fund.

The 2008 Kansas Legislature looked to the institutional leadership available in the GMD3 governing body, professional staff and stakeholders to assure a portion of the damage funds would be saved from legislative budget sweeps to meet the needs of the area directly affected by prior compact violations. In doing this, the Legislature created an efficient way to accomplish the purposes of K.S.A. 82a-1803. This GMD3 WWCP Fund administrative structure allows the investment interest on the principal to accrue to it under fiduciary care of GMD3.

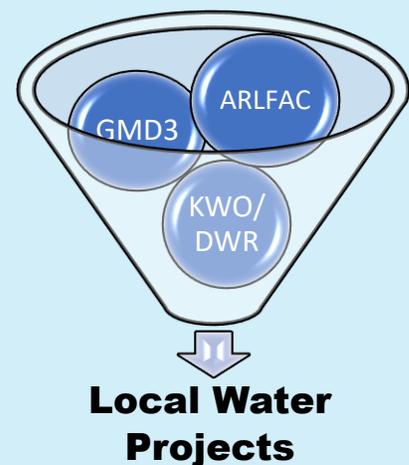


Legislative goals for the GMD3 WWCP Fund:

1. *Maximize general public good (public interest).*
2. *Maximize efficiency of call water for ditch irrigation.*
3. *Maximize benefits of high river flows to improve recharge.*
4. *Mitigate water quality problems in surface and groundwater.*
5. *Reduce consumptive use of water to help stabilize the system.*
6. *Improve the stability of the hydrologic system for irrigators.*
7. *Address compact compliance.*

Arkansas River Litigation Funds Advisory Committee (ARLFAC)

The ARLFAC is chaired by Randy Hayzlett, who represents the South Side Ditch Association during committee meetings. Chairman Hayzlett also serves on ARCA and the Kansas Water Authority (KWA). The committee is comprised of representatives from the six irrigation ditch companies in the damage area, supported by GMD3 staff and advised by state staff. Meetings are open and minutes are posted on the GMD3 website. ARLFAC members and the organizations they represent have given significant attention to the river management and interstate concerns for generations. A preliminary list of projects that fit the requirements of K.S.A. 82a-1803 was developed by this stakeholder work group in 2006, working from a GMD3 “Upper Arkansas River Conservation Projects Reconnaissance Study” completed in 2005. These priorities resulted in three feasibility studies initiated in 2006 by the KWO using the damage funds. A basis for moving the funds to local care was formed in the following year and the Kansas Legislature passed a budget proviso in 2008 moving the remaining damage funds to GMD3 fiduciary care subject to a KWO grant agreement that preserved some state supervision and assured a role for the surface water ditch companies.



GMD3 Management Program and the GMD3 WWCP Fund.



The GMD3 draft revised Management Program currently awaiting approval presents the nature of water supply problems in Southwest Kansas and the thinking for policy and behavior adopted to address them. As a program, this document discusses relationships and interdependent roles of GMD3 and state and federal partners. GMD3 continues to do its part to help keep Kansas strong – not because it can always find immediate solutions to the unmet water demands and supply challenges, but because it allows room for those discussions to occur with a locally elected board and adopted management program. In that space, with good intention and honest dialogue, it is possible to find workable solutions that better meet our collective needs and better serve Kansas. GMD3 has nine focus activities: 1) Economic Development; 2) Water Rights Assistance; 3) Water Conservation; 4) Ark River Management; 5) Outreach; 6) State Water Planning Coordination; 7) Interstate Supply; 8) Models and research; and 9) Water Quality Protection. This management program and board governance activities provide an ideal space for dedicated state water project funds to meet legislative goals, pursue productive partnerships, and ensure efficient expenditures. The action of the legislature to move the GMD3 WWCP Fund to local care underwrites local legendary leadership for the vital goal of wise water management for Kansas.

*local legendary leadership
for the vital goal of wise
water management*

Ark River Supply.



The Arkansas (Ark) River in both Colorado and Kansas has been over-appropriated for decades, with the exception of the rare very high flood flows and reservoir spill events. The question of flood flow apportionment is yet unresolved. The market for water rights along the front range in Colorado can reach \$85,000 per acre-foot. Greater use and storage efficiencies upstream and declining quality of deliveries into Kansas further threaten Kansas supply. For example, nearly 10 tons of uranium has been delivered into Kansas annually in recent years. Reservoir construction and storage improvements in Colorado have dramatically increased water use efficiencies and lowered water quality over time. River flows into southwestern Kansas are highly dependent on available upstream storage which is rarely sufficient to meet the senior water right irrigation demands of the Associated Ditches of Kansas. The Kansas farmer owners of those senior water rights have been using and protecting surface water since the 1880s, providing a basis for equitable apportionment under the 1949 Compact agreement with Colorado. Kansas irrigation ditch companies call for water under their federal court decreed rights, vested water rights and state Compact administration and put water to beneficial use in Hamilton, Kearny, and Finney counties. Most of the lands irrigated from the river also have groundwater wells that supply irrigation water through conjunctive use management. The constant aquifer recharge from river flow ties all area water uses to Ark River flows.

Cross boundary barriers of interstate water partners.

It takes funding, staff resources and interstate partners to adequately address the water supply challenges of Kansas interstate streams. Viable federal assistance in addressing the Ark River basin water quality problems span the Kansas-Colorado Stateline and boundaries of federal

partners. Federal regional boundaries that change at the Colorado-Kansas Stateline include: US Army Corps of Engineers; EPA; Department of Interior (DOI) – Reclamation; and the US Geological Survey. To further complicate these, Kansas is included in DOI region 5, but Kansas Arkansas River basin projects of GMD3 and the City of Wichita work with Reclamation staff in DOI region 6. Each federal office has developed its own set of stakeholder partners or communities of practice not normally involved in issues outside of their operating spheres, forming study barriers. GMD3 learned from experience in a Reclamation Basin Study that cross-region federal partnerships must overcome regional federal operational barriers as real as a Stateline. So, Kansas and GMD3 must find ways to work across multiple federal regional groups to address the Ark River water quality concerns.

GMD3 request for Quality investigation - 2020 ARCA meeting.



Water quality (water usability) of river flow is a significant problem and a growing concern in both member states of ARCA. As the largest reservoir in the state, the Ogallala/High Plains Aquifer in GMD3 receives tons of Uranium and other harmful dissolved solids carried in with river flow from Colorado. This daily occurrence is depleting Kansas groundwater usability. The resulting health concerns require as much attention and funding as Harmful Algal Blooms in other Kansas Reservoirs. In the 1949 agreement administered by ARCA, Article IV-D express terms of the Compact prohibit future beneficial development which involve the improved or prolonged functioning of existing works and which materially deplete the waters of the Arkansas River in usable quantity or availability for use to water users in Kansas. The water quality question of harm to water useability needs investigating and constant attention in compact meetings. Some may view Compact language as lacking reference to water quality and not enforceable, but the purposes and language of the compact are not so limiting. GMD3 Request to ARCA: *“Under the equal dignity of each state in questions of compact enforcement, we raise the question of Compact compliance and harm to basin water users for ARCA and member states to investigate the changes to 1949 water quality conditions and [e]ffects on Compact allocations.”* Water usability metrics are needed for basin water system operations to aid in determining remedies for any compact violations. Kansas cannot let Ark River water quality be kicked aside as a subordinate compliance matter in ARCA meetings and Colorado delivery system operations.

Kansas cannot let Ark River water quality be kicked aside as a subordinate compliance matter



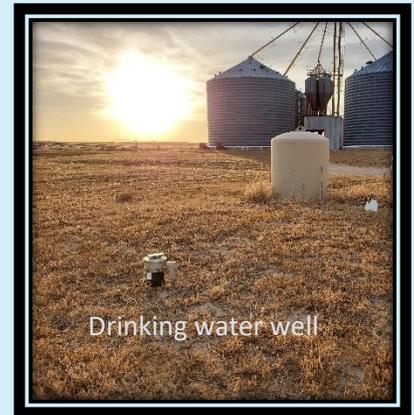
Stateline Uranium delivery estimates into Kansas

Arkansas River flow entering Kansas brings high levels of contaminants, including sulfate and salinity. Estimates from the Kansas Geological Survey of the weight of uranium coming into Kansas annually from Colorado are near 10 tons. See D. Whittemore, KGS Open-File Report 2017-2, updated January 2019 and February 2020).

http://www.kgs.ku.edu/Hydro/Publications/2017/OFR17_2/index.html

SW Kansas water mineralization study (ongoing)

In response to 2019 legislative SR1729 and HR6018, the KDHE embarked in 2020 on a domestic water well project and two-year study, in partnership with the KWO, KDA, and KGS. This project builds on prior KGS study to provide some focus on analyzing the impacts of uranium and other minerals on water used for human consumption from private water wells in the GMD3 WWCP Fund area and elsewhere along the Arkansas River. In 2020, homeowners were invited to provide voluntary water well samples, using sample equipment provided by KDHE and distributed through local project hubs, including county health departments. The KGS is evaluating the results as part of the longer-term study and sampling assistance by GMD3 into 2021. See: <https://www.kdheks.gov/mineralization/index.htm>



Ark Valley Conduit Project in Colorado now under way.

Groundbreaking occurred late in 2020 for the Colorado Arkansas Valley Conduit (AVC), a 1965 authorized pipeline project to supply drinking water to 40 communities in SE Colorado. The 2013 federal environmental impact statement (EIS) for the AVC recognized that simply replacing contaminated groundwater supplies with surface water from the Arkansas River is problematic because the river is also contaminated with high levels of selenium, sulfates, uranium, and salts. Basin contaminated drinking water concerns form the basis for \$500,000,000 in federal support to move forward. What about the rest of the basin not mitigated by the project? The 2019 Kansas legislative resolutions SR1729 and HR6018 were to communicate the need for more cooperation and funding assistance in completing planning for the entire basin, including needs in Kansas.



2019 Kansas Legislative Resolutions SR1729 and HR6018.

See: http://kslegislature.org/li_2020/b2019_20/measures/documents/sr1729_enrolled.pdf

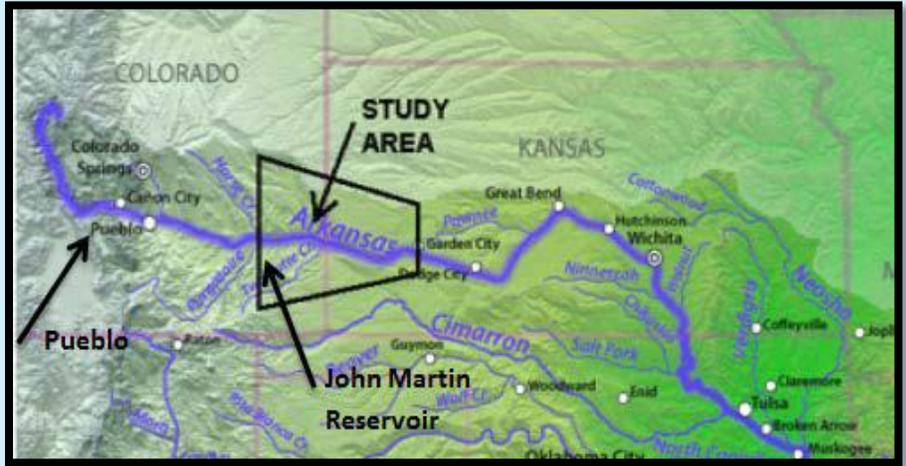
And http://kslegislature.org/li_2020/b2019_20/measures/documents/hr6018_enrolled.pdf

Contaminated water from Colorado is depleting the usability of the declining Ogallala/High Plains aquifer supply in Kansas, making it questionable whether local groundwater is clean enough for human and agricultural use.

Changes in climate and use efficiencies in Colorado may add to the problem. 100% of the contaminated flows from Colorado are applied on fields or percolate down into southwest Kansas aquifers. Water flows into GMD3 and almost nothing flows out.

Efforts to conduct a Basin Plan of Study from John Martin Reservoir to Garden City in 2015 was supported by Reclamation but state staff in both states struggle to find a way to support the opportunity, (see

<http://www.gmd3.org/learning-center/>) or to develop the interstate tool like in the Republic River Compact. See <https://www.usbr.gov/watersmart//bsp/docs/finalreport/republican/republican-river-basin-study-final-report.pdf>



Leveraging for grants.

Grants are regularly pursued to stretch funding resources with partner state and federal agencies. A Bureau of Reclamation WaterSMART Applied Science Grant submittal is planned in early 2021 to leverage local WWCP Funding of

\$85,000 with \$85,000 of state funds to seek a matching \$170,000 Reclamation grant to complete a \$340,000 Preferred Interstate Supply Evaluation with water quality modeling. This will inform basin water operations, including storage proposals, quantity deliveries and water quality concerns for preferred supply conditions.



ARLFAC Members

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Dates of Advisory Committee meetings in 2020

Committee meetings are open and generally conducted at the GMD3 office in Garden City, with those attending either in person or by phone. three meetings occurred: on May 12 at 9 a.m.; June 2nd at 9 a.m.; and on October 22nd at the Farmers Ditch headgate. All ARLFAC and GMD3 board minutes are available at <http://www.gmd3.org>.

Kansas CREP and the GMD3 WWCP Fund Activity

The 2007 Kansas Legislature authorized the Kansas Conservation Reserve Enhancement Program (CREP) using part of the money Kansas received from Colorado as repayment of quantified damages to southwest Kansas. The portion dedicated to the State Water Plan Fund was leveraged with local, state, and federal resources under CREP to provide voluntary cash incentives to transition irrigated land to dry land grass and to permanently retire groundwater water rights. Most of the cash damage funds committed to the CREP was later swept to other Kansas legislative funding priorities. But the legislature has continued to make funding available. The program benefits are locally viewed as a cost-effective mechanism to mitigate some of the

damaging effects of over 400,000 acre-feet missing due to compact violations by Colorado. Those damages included incremental loss of aquifer water levels and the costs that will be incurred to pump water from greater depths. Local retirement of groundwater rights help offset those effects while encouraging land use transition in highly erodible soils.

The amount of in-kind costs which the GMD3 expended in the CREP area: \$118,716.41. Activities to promote proper water management and conservation in the CREP area included:

- a. Water flowmeter use and maintenance inspections.
- b. Direct assistance to stakeholders on water rights and water conservation.
- c. Advice and assistance on how the CREP can work to enhance water conservation benefits and the purposes of the Kansas CREP.

GMD3 WWCP Fund Cash to CREP eligible producers:

October 2019 through September 2020.

Proposed Project	Cash for Surface Water Efficiency	Cash for Aquifer Recharge	In-kind Cost
Farmers Ditch Headgate	\$418,082.86		\$1800
Alternative Delivery System/ South Side Ditch System	\$46,100		\$1000
Reimbursement to GMD3 for fiduciary and fund operations			\$13,925.49
Totals from GMD3 WWCP Fund	\$464,182.86	\$0.00	\$16,113.75

The KDA/ Division of Conservation annually provides a full CREP report:

<http://agriculture.ks.gov/divisions-programs/division-of-conservation/water-conservation-programs>

GMD3 WWCP Fund Activities and area support since 2008.

(See project numbers on front map)

- 1) **Kansas CREP** - state match from GMD3 WWCP Fund activity.
- 2) **South Side Ditch Phase 1** (Initial project construction completed, 2011)
 - a) Southern Alternative Delivery System - ditch capacity restoration.
 - b) Efficiency improvement in key areas.
 - c) New return canal to the river (2012).
- 3) **Lake McKinney** (Construction completed, 2011)
 - a) Restoring Lake McKinney capacity and storage efficiency, update outflow structures.
 - b) Alternate bypass canal around Lake McKinney saves water.

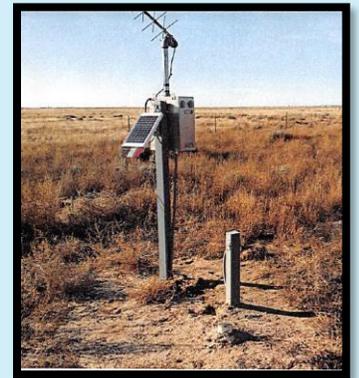
- 4) **Arkansas River Recharge storage evaluations** (ongoing)
- a) GMD3 new water storage supply study, 2004
 - b) GMD3 options reviewed, Arkansas River Reconnaissance study completed 2005.
 - c) Recharge elements in the System Optimization Review, 2014.
 - d) Future technical memo on importing Oklahoma groundwater through existing pipelines repurposed for water importation.

- 5) **Amazon Headgate Improvement Project** (Construction completed 2012)
- a) Replacement of headgate to improve diversion efficiency.
 - b) Rotary gates provided by Amazon Ditch as contributing partner.

- 6) **Frontier Ditch West Bridge Creek Flume** (use efficiency)
- a) Evaluation (2011)
 - b) Construction (Completed, 2012)

7) **Upper Arkansas basin gage and data collection.**

- a) The GMD3 WWCP Fund provided interim funding for important river system gages lost from state agency budget cuts. GMD3 sought and received permanent dedicated funding the Legislature in **K.S.A. 74-5,133 - Arkansas river gaging fund** (2012).
- b) Equip South Side return to river gaging station (completed, 2012)
- c) Identify and equip upper basin Stateline groundwater gage sites.
 - i) In 2013, data needs resulting from new post compact irrigation development in Colorado south of Holly near Stateline.
 - ii) Groundwater gages established by GMD3 and partners in 2014 with O & M funding from 2015 SB156 amending K.S.A.74-5,133).



8) **System Optimization Review, Kearny and Finney Co.**

- a) GMD3 assistance came from a \$112,000 Reclamation WaterSMART grant (2012, completed 2014). The \$223,250 project budget focused on elements for improving efficiency and operations of the Ark River water delivery system in GMD3. See study at: https://docs.google.com/viewerng/viewer?url=http://www.gmd3.org/wp-content/uploads/2017/07/SOR_Report_September_Final.pdf&hl=en

9) **Improving Drinking Water supply due to bad quality** (2014).

- a) "Upper Arkansas River Basin Public Water Supply Alternatives Viability Analysis." https://www.usbr.gov/gp/otao/upper_ark_water_supply_alt_final.pdf
- b) Collect water quality samples to assist Kansas Geological Survey (ongoing).
- c) KGS , KSU, and GMD3 sampling crops to investigate uranium contamination. See <https://gsa.confex.com/gsa/2016AM/webprogram/Paper283200.html>

10) **Frontier Ditch Return Gage** (Completed, 2015)

Gage was replaced with assistance from US Geological Survey with O&M through a continual USGS-KDA agreement implementing K.S.A.74-5,133 to accurately measure return flow to the Arkansas River from the Frontier Ditch.

11) Amazon Canal Sand Creek Flume (at Lakin Golf Course)

- a) **Evaluation** (Completed 2015).
- b) **Demolition and reconstruction** (Completed, 2016)

At Right, Replaced the old wood and steel Amazon Ditch Flume over Sand Creek with an engineered and efficient permanent structure that supplies both the Amazon Ditch system and the Great Eastern irrigation ditch system that includes Lake McKinney.



12) South Side Ditch Headgate Improvements

(completed 1996, paid in 2016)

State required repairs to the headgate and river control structure in 1996 to improve function and efficiency. The state committed to reimburse costs if damage funds became available from KS vs. CO. Costs were submitted and reimbursed in 2016.



13) South Side Ditch Phase 2

(2020).

Evaluate and replace 14 water control structures along the ditch. In combining several, South Side eliminated need for two structures, saving project dollars. Also, reusing engineering for one structure saved engineering costs. Work began in 2016 and concrete work on most structures has been ongoing. The improvements allow for more efficient delivery of surface water and provide the ability to consider head stabilization ponds so surface water can be run through center pivot



irrigation systems and river water can be co-mingled with groundwater to improve low river water quality. The total budget for Phase 2 is \$1,400,000. A total of \$464,841.61 was spent on the project in 2017 and \$316,046.45 in 2018, \$377,042 in 2019 and \$50,852 in 2020.

14) **Interstate operations review (ongoing)**

Colorado "Super Ditch" Concerns

a) **Preferred Interstate Supply Assessment.**

- i) Began in 2012 compiling all institutional agreements and court rulings that govern interstate operations.
- ii) Assisted state staff in funding a review of the Colorado so-called "Super Ditch" pilot project conducted by Spronk Water Engineers. Now operated in Colorado as alternative water transfers (ATMs).
- iii) Funding support for LiDAR cost share with Kearny and Grant Counties for public use and to evaluate aquifer recharge.
- iv) In keeping with 2019 session SR1729 and HR6018, a cooperative study is planned to leverage local \$85,000 from the GMD3 WWCP Fund with \$85,000 of state funds to

Colorado seeks storage...
Kansas users seek funding to develop the metrics needed to guide Kansas interstate talks.

seek a matching \$170,000 through the Reclamation WaterSMART Applied Science Grant program for a \$340,000 project to quantify preferred supply elements of the shared Arkansas River basin, including storage, quantity deliveries and water quality concerns that will inform the management program and Kansas interstate team working on the Colorado request for additional storage needing ARCA approval. A prior attempt by

GMD3 at a Basin Plan of Study for the Upper Ark River basin in Kansas and Colorado below John Martin Reservoir in 2015 was not supported by either state's water agency resources. The current study is awaiting state funds and a Reclamation Applied Science grant submittal in 2021.

b) **Colorado Lower Arkansas Water Management Association (LAWMA) - Sufficiency of Colorado post compact water use replacement.**

In 2015, The KDA/DWR was short on interstate water management funds and requested \$75,000 of the GMD3 WWCP Fund for technical analysis and consulting work related to the effects that the Colorado LAWMA decree operations have on Kansas water supplies. In 2017, this budget was extended to \$95,000 from the GMD3 WWCP Fund. Good analysis informs good interstate working relations

LAWMA Operating Concerns.

c) **Colorado Arkansas basin winter water storage and reservoir operations.**

New development of storage space in basin since the Compact agreement includes operations to store irrigation water that could have otherwise been diverted to fields by irrigation entities during the winter months. This stored water may then be released during the following irrigation season for irrigation use or made available for other uses. Kansas water users maintain basin winter storage operation concerns. Colorado participants in the basin Winter Water Storage Program (WWSP)

Winter Storage
Operating Concerns

store their WWSP water primarily in Pueblo Reservoir, but also use Lake Henry and Lake Meredith under the Colorado Canal system, Holbrook and Dye Reservoirs under the Holbrook System, Adobe and Horse Creek Reservoirs under the Fort Lyon System, Great Plains Reservoirs under the Amity System and in John Martin Reservoir.

15) **GMD3 WWCP Fund support for the Willis Water Tech Farm** (Completed, 2017)

At right, Field day at the Willis Water Technology Farm. As aquifer supplies and well yields decline in southwest Finney County, water conservation and utilization strategies are shared with interested attendees



16) **Roth/Garden City Company Tech Farm water quality use study.**

Both river and aquifer sources are harmed by very low water quality from Colorado. **At right,** 2017 KSU trial of PAM soil conditioner and river water drip irrigation Proof-of-Concept preliminary work indicated dryland corn out performed corn irrigated with river water due to poor quality river water and timely rains. In 2019, a six-zone more permanent and complex SDI set-up now installed on the same location. Netafim and Garden City Co are now involved and are set to start a replicated study this year (2021).



At Left, White PVC plastic pipe is used to carry the water across the field suspended below the steel pipe. Under poor quality irrigation water supply, This addition saves the steel structure from the corrosive nature of poor-quality water that can causes steel structural collapse in a few years.

At Right, Field Day at the Roth water technology farm including bubbler nozzle efficiency. One of two water technology farms in Finney County supported by the GMD3 WWCP Fund.

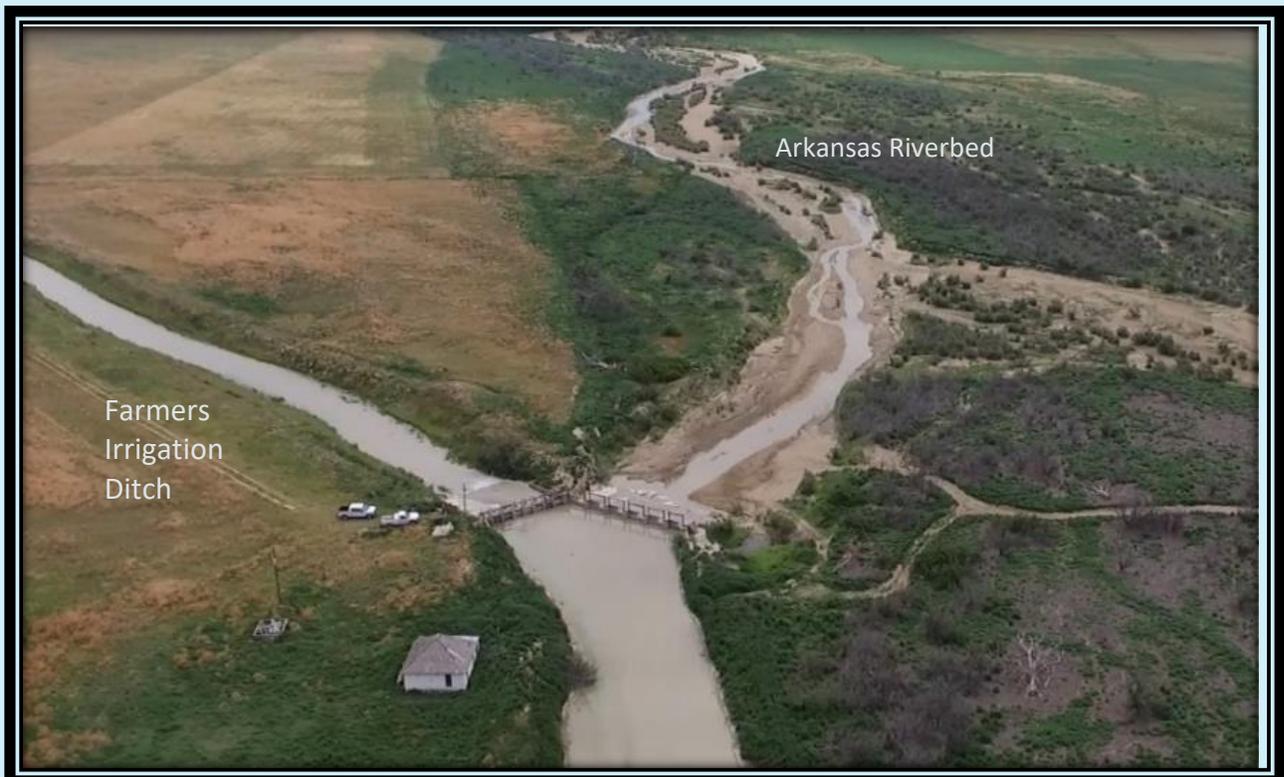


17) Muskingum River Routing Method - Modeled Water Deliveries

The Muskingum River routing method is one of several factors used to credit the Stateline delivery of Kansas Account releases from John Martin Reservoir. \$37,482.92 was spent in 2017 to develop the model for the river reach from Stateline to the farmers/Garden City Ditches headgate. Some project overruns occurred between the engineering and legal expenses, and \$17,517.08 was paid in 2018, for a total project expense of \$55,000.

18) Replacement of the Farmers Ditch Headgate (ongoing)

- a) Needed a more water efficient and technology friendly water control system.
- b) Lack of River administrative boundaries for Kansas owned land was problematic.
- c) Leveraged GMD3 WWCP Fund expenses for a WaterSMART grant of \$300,000.





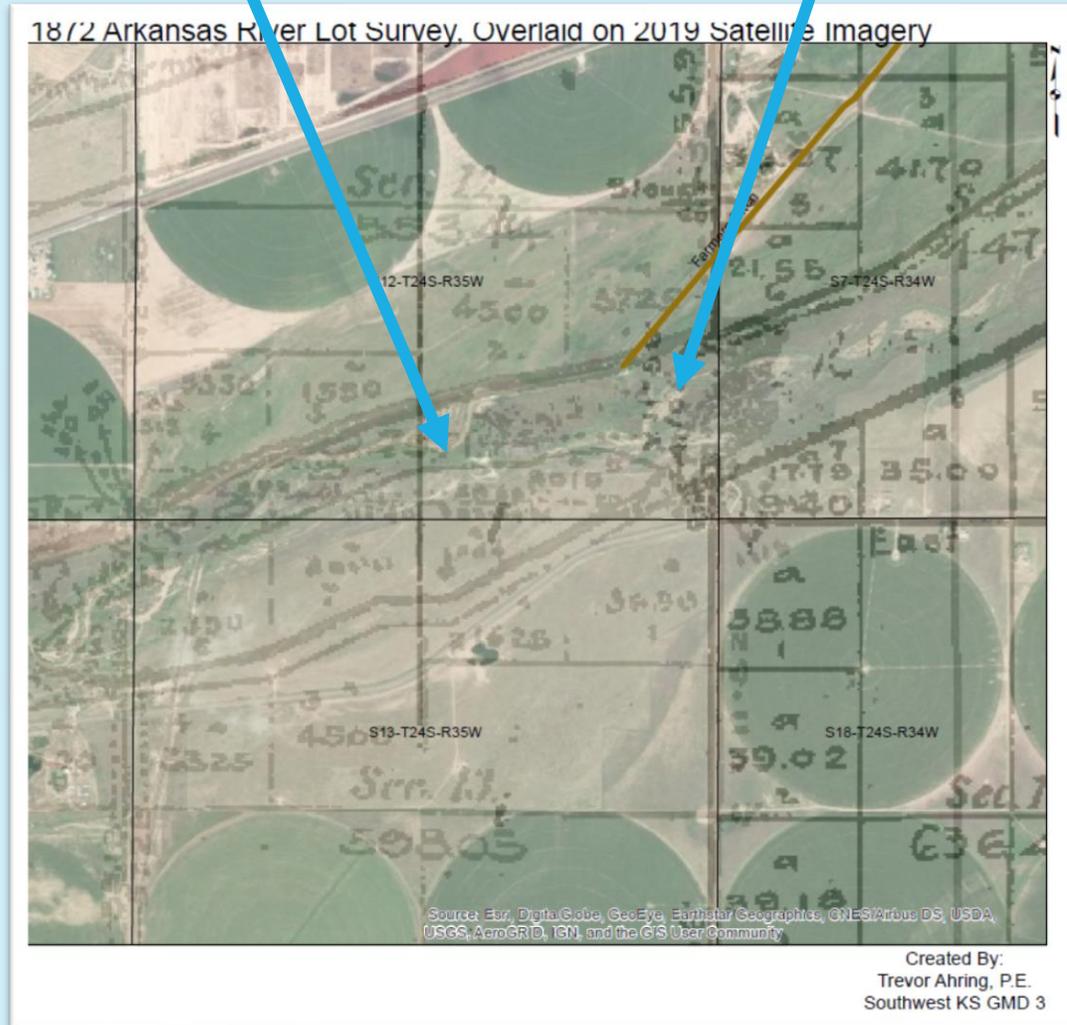
At left, Farmers Ditch headgates construction (January 2021) Steel piers and cement footings are being set for new Ark River flow control structure for river diversions to the Farmers and Garden City Ditch Associations infrastructure.

Below, ARLFAC meets in 2020 with construction site supervisor.





At Left, Arkansas River area on the east side of Kearny County at the Farmers Ditch river control structures. Property lines between state and private land complicated engineering. GMD3 worked with the Secretary of State (SOS) to resolve boundary concerns, allowing a more affordable project.



At left, An image of the 1872 official survey is projected onto a 2019 satellite imagery to reveal the island area in question is originally surveyed riverbed and state property. No delegation of authority exists from the Kansas legislature for an agency to manage this land.

River boundaries and the GMD3 management program.

As illustrated in the complication to the Farmers Ditch headgate reconstruction project, obvious effects of water development and reservoir projects upstream have changed the normal in “normal high-water mark,” which forms the legal basis for property boundaries between state owned land and private land along the “navigable stream.” The manipulated flow in our highly regulated Ark River basin has created confusion in Kansas property boundaries and reminders of a resource management reality that one cannot manage what one does not define. Working boundaries for state property lines are needed, and GMD3 may propose river administration boundaries consistent with prior administrative boundary determinations, working with the Secretary of State, Kansas Water Office, the Chief Engineer, and others to better manage natural water infrastructure consistent with the public interest.

Arkansas Riverbank Breach in Finney County.

The Kansas legislature has not delegated to any local or state agency the duty to supervise state owned land along the historic bed and banks of the Arkansas River. In 2000, high river flows created a breach in the bank of the river, diverting stream flows into an adjacent sand pit. It is a diversion without a water right. The breach is approximately 200 ft long and the pit now collects 100% of river flow until it is full. In some years, the pit never fills, and river flows cease at the breach as inflows match losses to the aquifer. This disrupts the distribution of aquifer recharge benefits along the intensive groundwater use control area. Restoring the river flows downstream of the breach would extend the flow of the river and restore an important source of recharge to many groundwater users with depleting well capacity near the river channel. GMD3 is currently seeking federal and other funding to address this problem. For drone footage, see:



Riverbank breach and electric transmission tower concern

GMD3 Water Import Projects.

An in-state water transfer Proof-of-Concept (POC) project was conducted by GMD3 to the WWCP Fund area to investigate importing fresh water from the Missouri River to the Ark River/Ogallala High Plains Aquifer system. Other interstate water transfer POC projects are planned in 2021 in partnership with a local Colorado water district. Additional sources could mitigate poor quality local supply and other benefits.



Drone view of import water released from tanker truck

Water Vision.

The Kansas Water Vision has action steps identified to grow watershed yields to Kansas water storage to meet Kansas water needs. The 2015 Colorado Water Plan targets both new storage and agricultural alternative transfer mechanisms (ATM's) designed to preserve irrigated agriculture-based communities while providing additional supply to meet front range water markets. Both activities will require significant economic evaluation with an eye to irrigated agriculture-based communities. Securing new source water transfer is key to reaching the stars and a bright future for Kansas. Action steps are provided annually by GMD3 to the KWO/KWA for advice and assistance in developing water transfers that will help dry rivers flow, mitigate floods, meet unmet demands, fill empty storage spaces, and manage poor-quality native water across Kansas. See: <http://www.gmd3.org/wp-content/uploads/2021/01/GMD3-SWP-funds-budget-requests-2021-version-1.pdf> The GMD3 water Vision is to have partner water communities of practice reach across their barriers and think outside their box to fully consider local management program needs in state and federal water administration, planning and funding. See *Feast And Famine: Securing Kansas Water Needs* at: <https://www.youtube.com/watch?v=o7MKl43jAMY&t=1506s>

Financial Statements. The 2020 financial statements of the GMD3 general fund, WWCP Fund and others were audited in January 2021 by Lewis, Hooper, and Dick, LLC, Certified Public Accountants and available upon request. Contact: Mark Rude, text or call: (620) 272-3001 or mrude@gmd3.org.

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