Update of Groundwater Management Program

By Jason Norquest, Assistant Manager

Governor's Conference on the Future of Water in Kansas

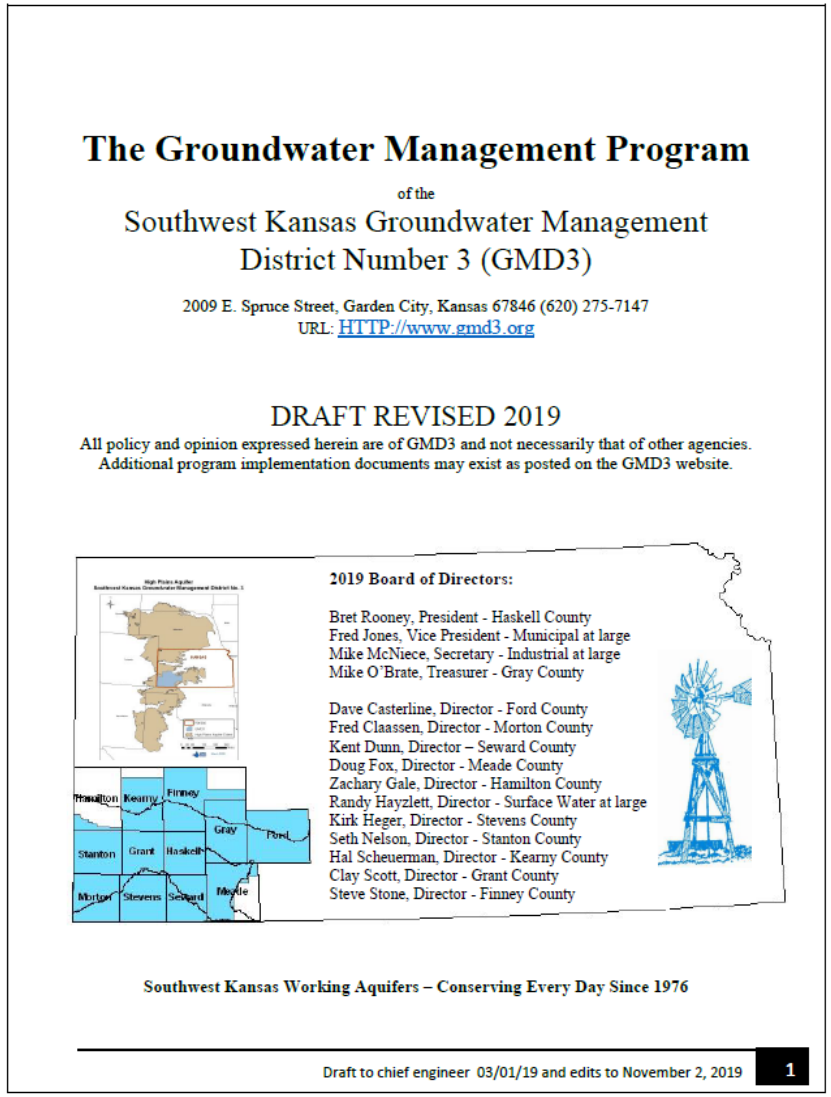
2019

WATER MANAGEMENT FOR SOUTHWEST KANSAS

GMD3

Counties served by GMD3	12
Non-domestic water rights	12,500
Use authorized	3.6 million acre-feet
Average use reported	2 million acre-feet
Annual reduction in storage	776,000 acre-feet
Annual recharge from precipitation	210,000 acre-feet
Annual Domestic use	125,115 acre-feet (15 AF/section)
Max. allowed annual use to avoid 40% depletion in 25 Years (40/25 rule)	1,732,832 acre-feet
Lateral groundwater reservoir inflow/outflow	6,000 acre-feet gain
Return flow recharge (13%)	260,000 acre-feet returned
Irrigation-enhanced precipitation recharge, dewatered unit drainage, inflows from Dakota system, streamflow capture.	621,625 acre-feet gained or returned to the High Plains Groundwater reservoir

GMD3 Management Program Update



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Water

http://www.gmd3.org/what-we-do/management-program/

GMD3 Water Rights Administration Program

2019 Governors Water Conference

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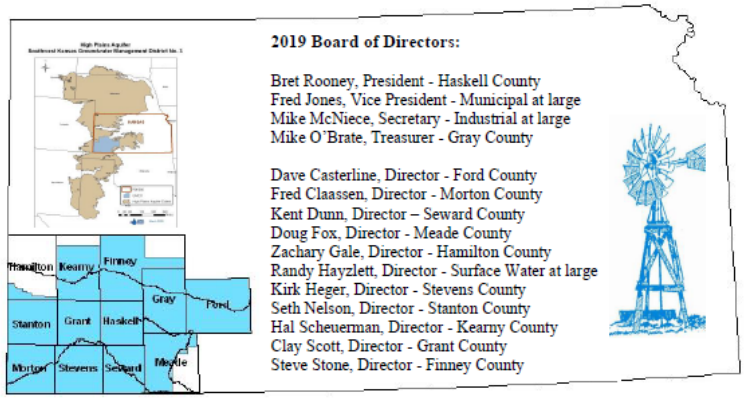

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GMD3 Water Rights Administration

- Set transparent criteria for managing aquifer declines.

- Provide reliable information for water business decisions.

WATER MANAGEMENT FOR SOUTHWEST KANSAS
GMD3

GMD3 will use well drawdown constraint guidelines to identify critical wells with prior rights to available groundwater supply

1. **Drawdown Allowance**

2. **Economical Drawdown Constraint**.

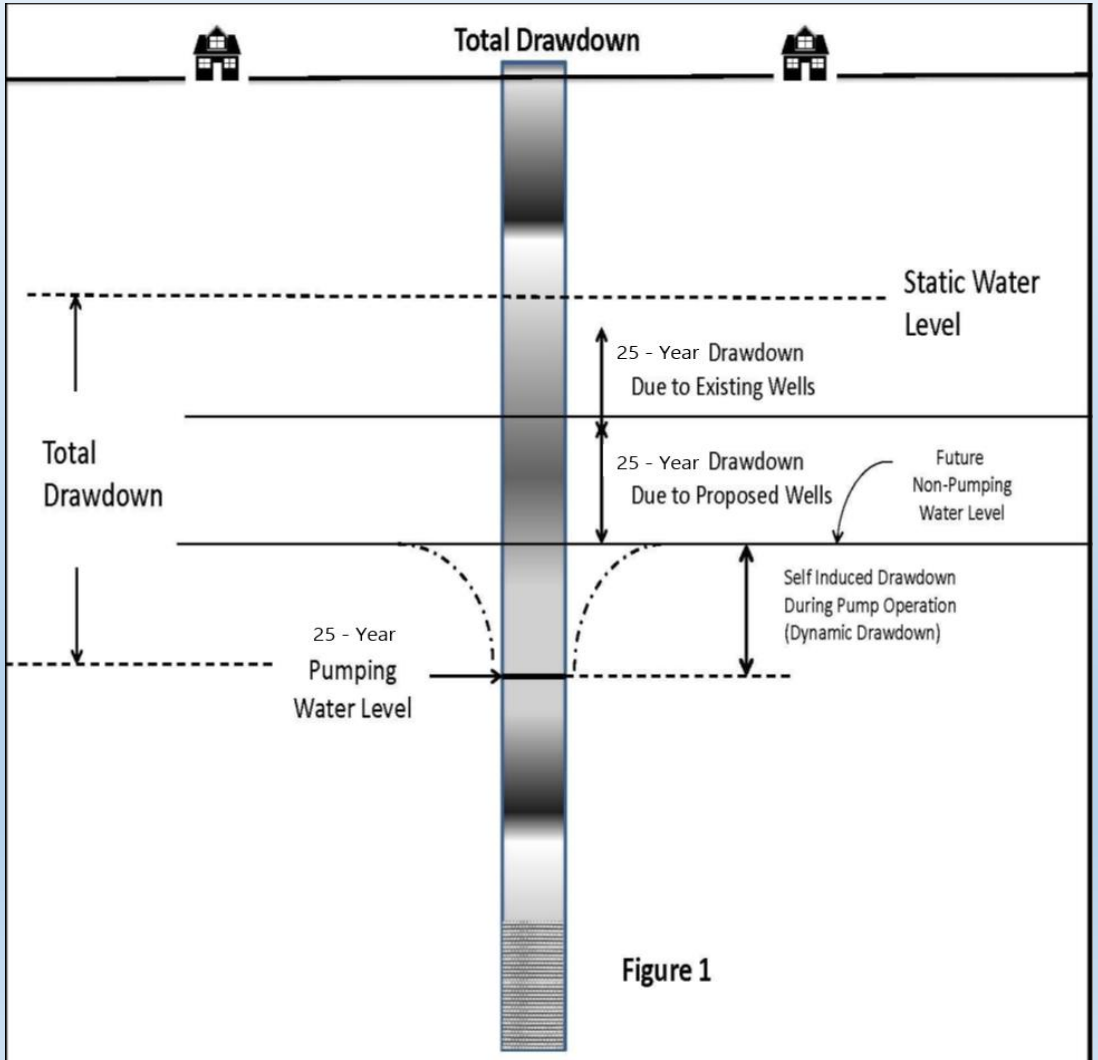
3. **Physical Drawdown Constraint.**

4. **Domestic wells.**

5. **Critical wells =** a high risk of water right impairment.

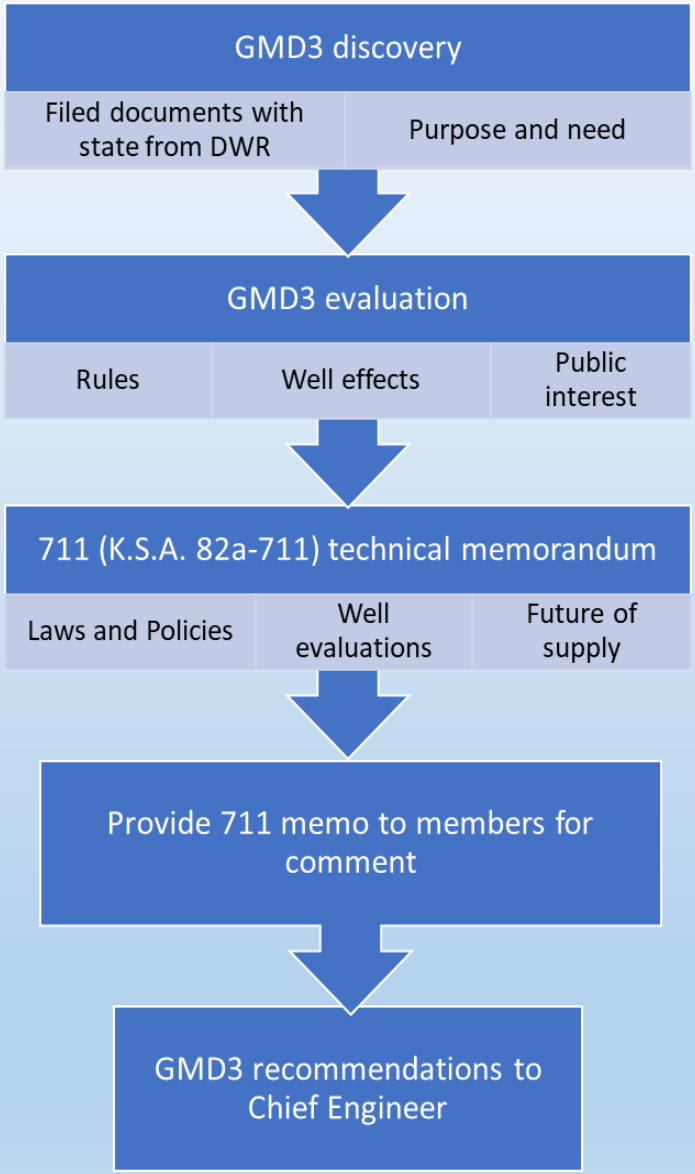
See: http://www.gmd3.org/wp-content/uploads/2019/04/DRAWDOWN-ASSESSMENT-GUIDELINES-for-GMD3-2019.docx

Well drawdown constraint guidelines



GMD3 review process

- from less than 15 days to significantly more time depending on numerous factors
- **Lead from local need**
  - Conserve to preserve supply.
  - A closed aquifer dedicates native supply to existing rights.
  - Safe drinking water is a priority.
  - Contribution to future supply will have no penalty.
  - Communicate and exchange information and expert evaluations.
  - Seek mutual benefits and good will.
  - Ensure necessary investment stability and intervene as needed.
  - Promote free enterprise in acquiring use rights to available supply.



GMD3 Water Conservation Program

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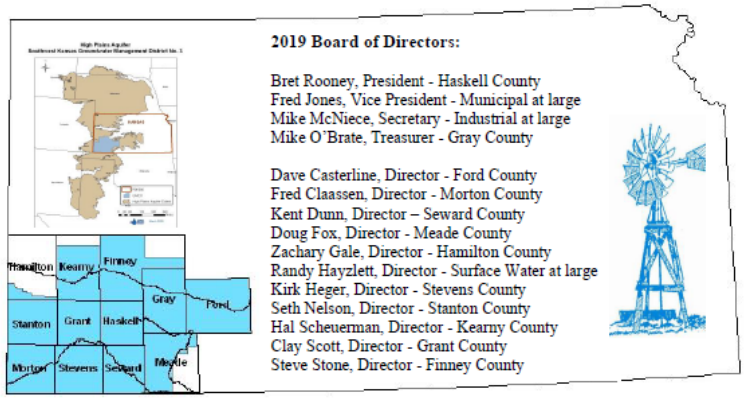

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GMD3 Water Conservation Program

Wise use. Conservation is not so much about prohibiting or defeating consumption as using water wisely.

Two types under the management program:

Type (1) **Use efficiency**

- the amount of valued output per unit of water consumed.
- efficiency alone will not correct aquifer depletion.

Type (2) **Maintaining aquifer storage**

- preserves and/or replenishes future useable storage.

Mobile Drip irrigation; managing water by the drop on the High Plains

Mobile Drip

A combination of price and non-price strategies are needed for supply security improvement. Planning, regulation, education and the uptake of water efficient technologies are important in the GMD3 management program where drops of water matter.

See video at: https://www.youtube.com/watch?v=3yT9yiyjB-4 and also at Governor's Conference on the Future of Water in Kansas

Some GMD3 conservation elements

Conserve to preserve factor.

- **A calculation** of new conservation for new benefits.

Supplemental wells and "chasing water"

- Supplemental wells to restore pump capacity raises concerns for "chasing water" to eventual complete depletion.

Corrective controls

- They add Type (2) water conservation

Some GMD3 Conservation elements

WCA Plans and Agreements

- Opportunity to formalize type (2) water conservation consistent with the management program.

Multi-well use flexibility

- Rule waivers and new pumping is evaluated to ensure type (2) water conservation occurs.

Rivers flow to groundwater storage

- Rare surface water flow goes to direct use, evapotranspiration or groundwater storage

GMD3 Ark River Management Program

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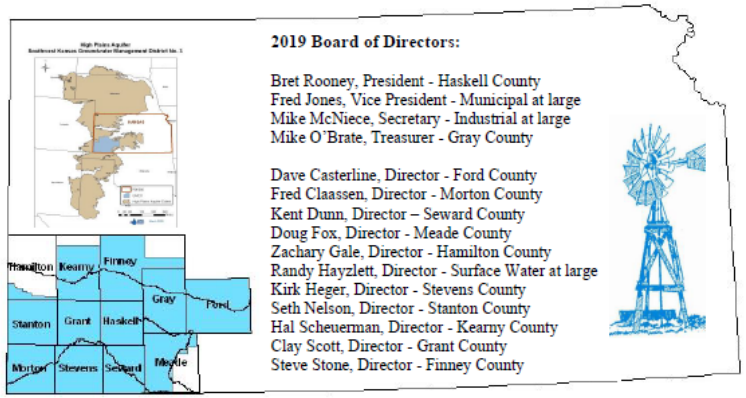

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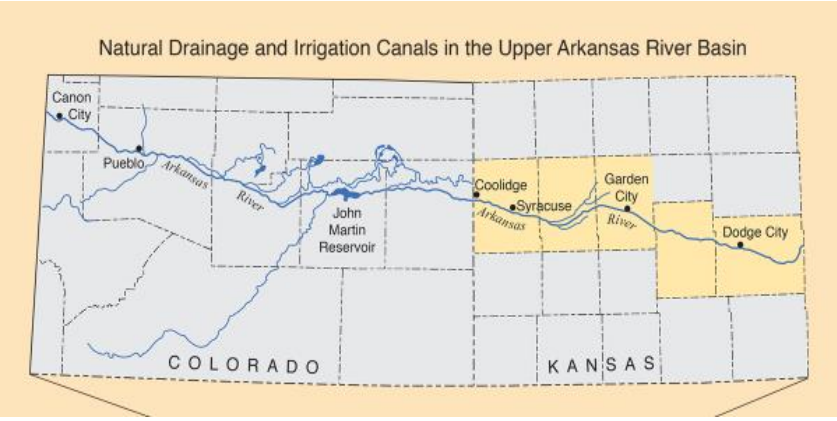
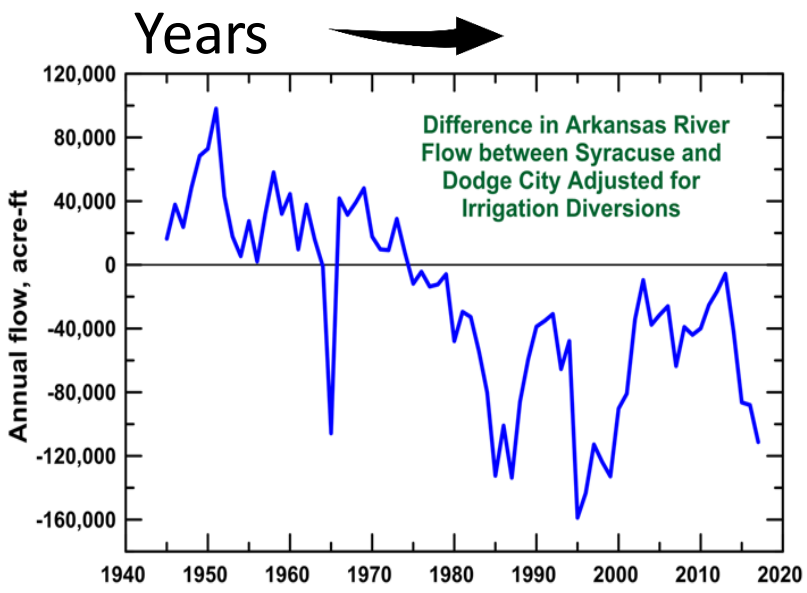


Ark River basin is shared with Colorado



Flows enter but don't leave GMD3

STATE OF KANSAS

HOUSE RESOLUTION No. 6018

A RESOLUTION requesting the federal government address water quality issues in the Arkansas River Basin in Southeast Colorado and Southwest Kansas and the prevalence of radionuclides in the waters of the Arkansas River Basin.

WHEREAS, The waters of the Arkansas River are declining in quality, due to naturally occurring sources that are exacerbated by irrigation and return flow practices concentrated in the Arkansas River Valley, east of Pueblo, Colorado; and

WHEREAS, In each of the last two years, approximately 10 tons of uranium have been delivered in downstream river flows from Colorado to groundwater in Southwest Kansas. The affected region in Kansas includes Hamilton, Kearny, and Finney counties; and

WHEREAS, Affected communities in Colorado and Kansas require assistance to remedy decades of poor water quality, which continues to worsen; and

WHEREAS, Federal standards on safe drinking water are intended to protect the health and safety of the public. Accordingly, it is within the interest of the federal government to partner with state and local water providers to develop remedies for the Basin; and

WHEREAS, Public assistance is vital to providing safe drinking water to Kansans in the Basin, whose water supply is currently contaminated in affected

2019 - HR 6018 & SR 1729

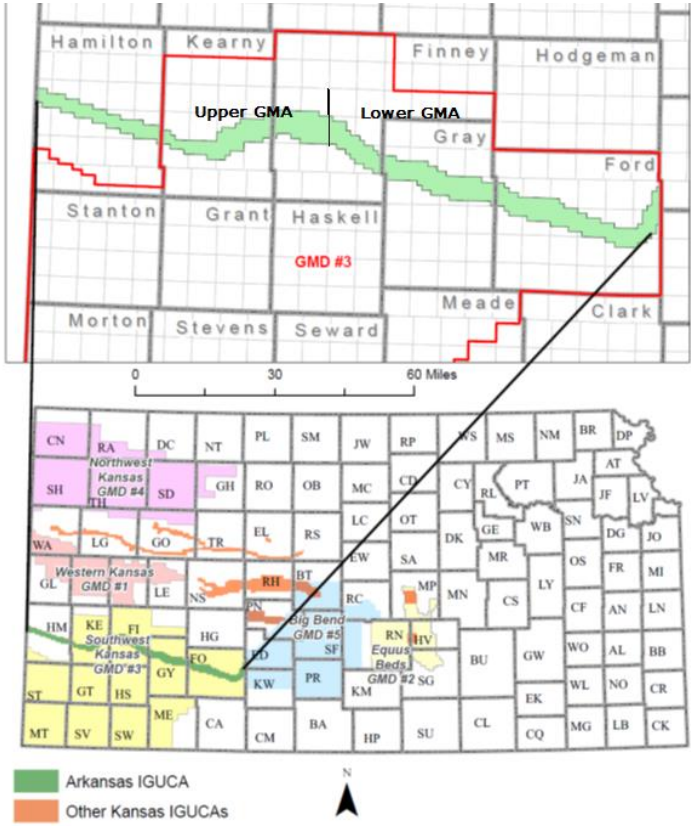
GMD3 Ark River Management Program

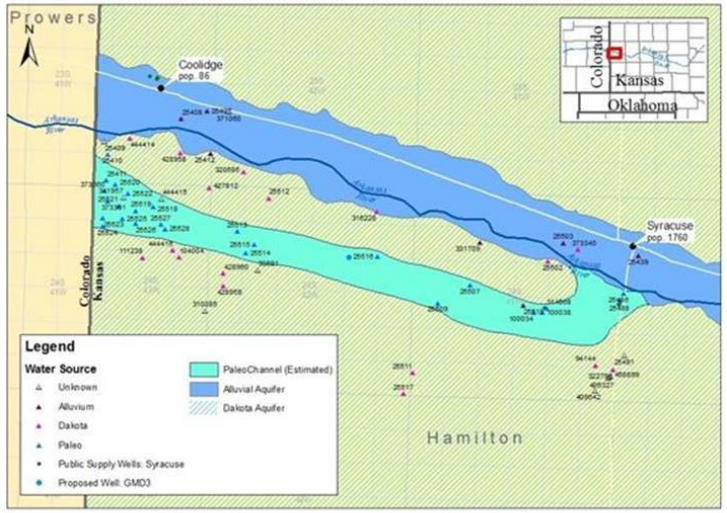
Water contamination reduces usability.

Year	Average annual Sp.C., µS/cm	Average annual uranium concentration, µg/L	Average annual flow, ft^3/sec	Annual uranium load, ton/yr	Annual uranium load, lbs/yr
2012	4,271	73.0	28.7	2.07	4,140
2013	4,395	75.9	26.9	2.01	4,020
2014	3,813	62.7	92.1	5.68	11,400
2015	3,230	50.1	196.1	9.68	19,400
2016	3,285	51.3	201.5	10.20	20,400
2017	3,324	52.1	234.6	12.03	24,100
2018	3,409	53.9	206.6	10.96	21,900

KGS Open-File Report 2017-2, updated January 2019.
Uranium concern

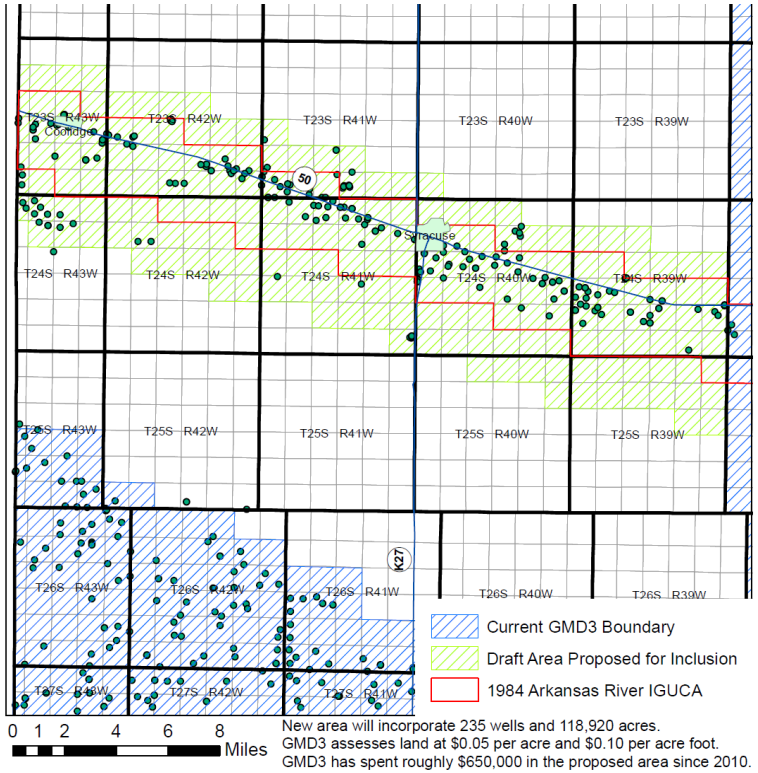
GMD3 Ark River Management





Paleo Wells

No groundwater management service in Hamilton Co. Ark River



May add Hamilton Co. area to GMD3

GMD3 Ark River Management

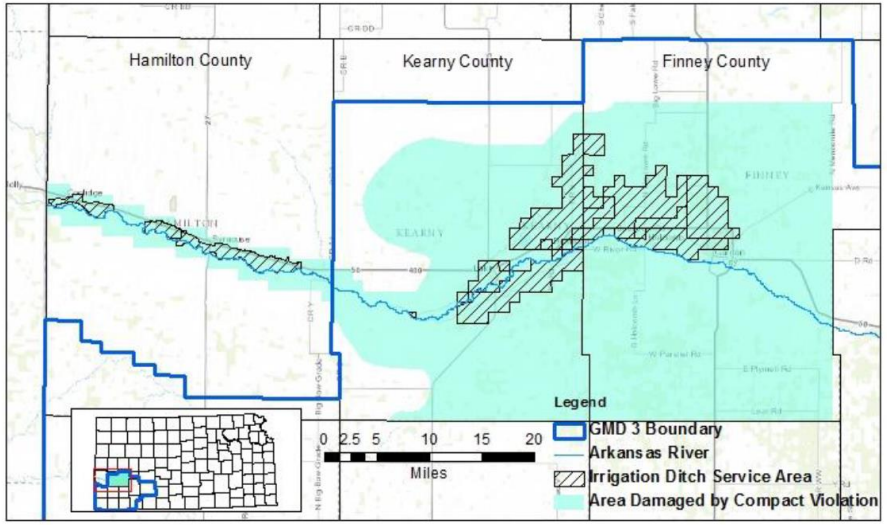
2019 Legislative Report on
GMD3 2018 Western Water Conservation Projects Fund Grant Activity and Related Concerns

Returning a fraction of the Cash Damage Award from KS vs. CO
to the area affected.

Submitted by:

The Southwest Kansas Groundwater Management District
Number 3 (GMD3)

Kansas Water Office Contract Number 08-0129
This report posted at: http://www.gmd3.org/about/special-meetings-and-committees/



Area of locally directed WWCP Fund activity.

Financial Statement for 2018. The Western Water Conservation Projects Fund (WWCPF) of GMD3 began year 2018 with $3,032,558.69 and ended the year with $2,679,771.41. There were expenditures totaling $390,004.98 and income of $37,218. Expenditures include a 3% fiduciary and management expense of $11,152.07 paid to GMD3. The 2018 Audit Report for GMD3 has been completed and found secured investments consistent with municipal investment law and acceptable expenditure procedures.

Field Day at the Roth water technology farm includes bubbler nozzle efficiency.
One of two water technology farms in Finney County with support from WWCP Fund.

GMD3 State Water Planning Coordination Program

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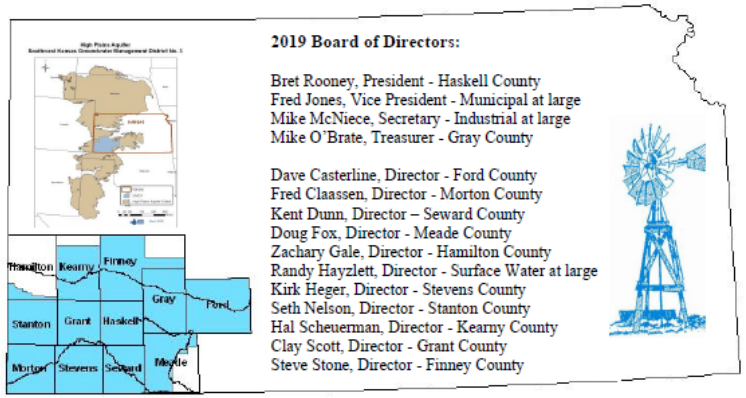

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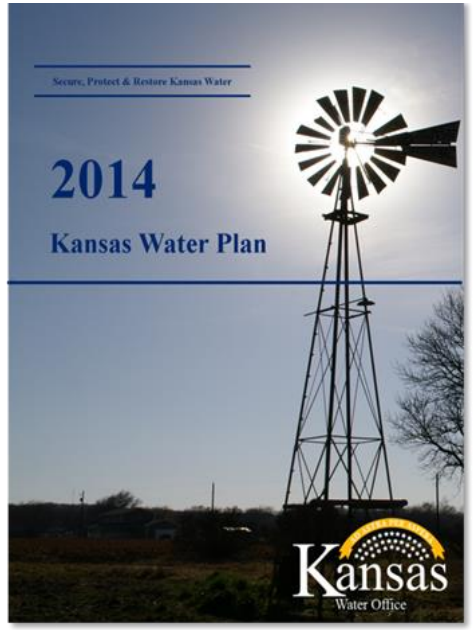
GMD3 State Water Planning Coordination

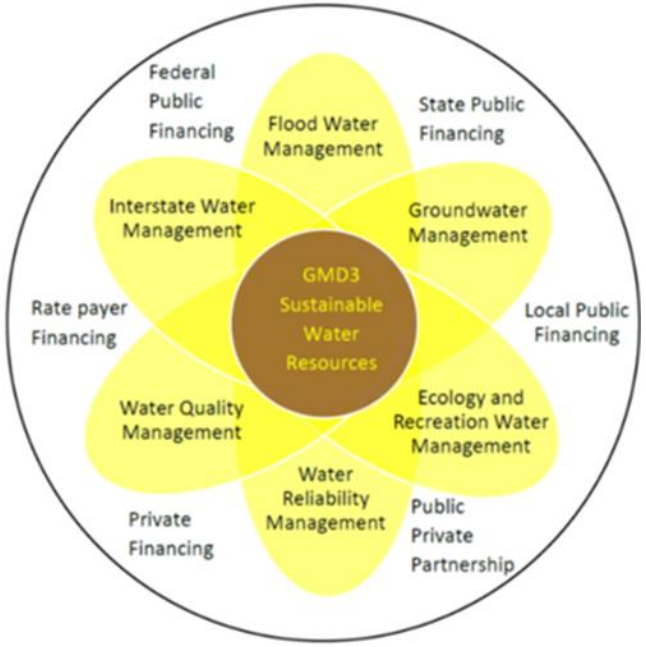
- **K.S.A. 82a-931. [State water plan]; intergovernmental coordination of planning.** … the state of Kansas hereby declares its intention to coordinate state planning with local and national planning…

- January 2018 O/KWA– GMD3 recommends 23 vision projects be moved forward.

- July 2019 letter - GMD3 provides 13 planning and project requests that include interstate and national planning activity.

- August 21, 2019 GMD3 memorandum to Interim Director Lewis





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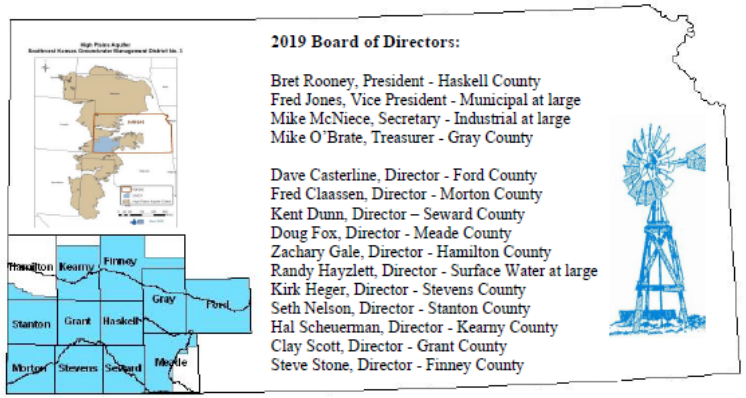

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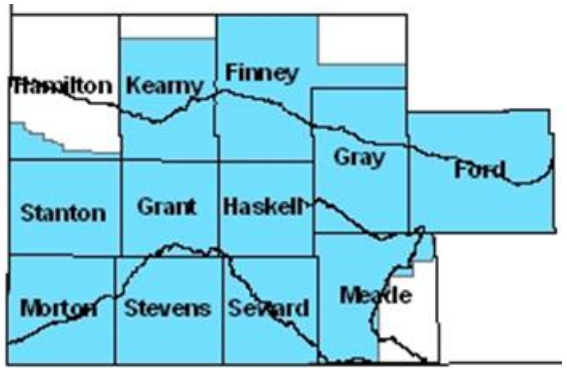
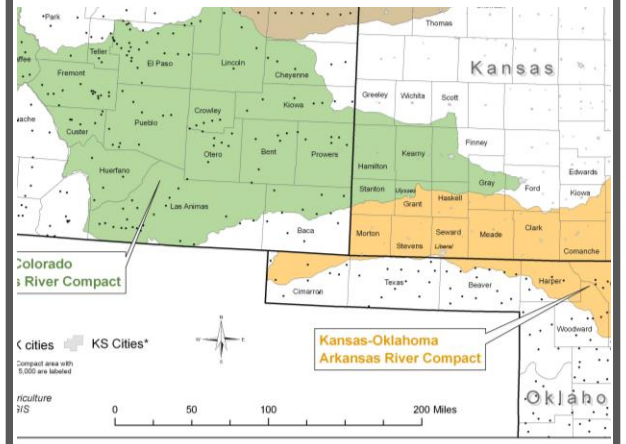
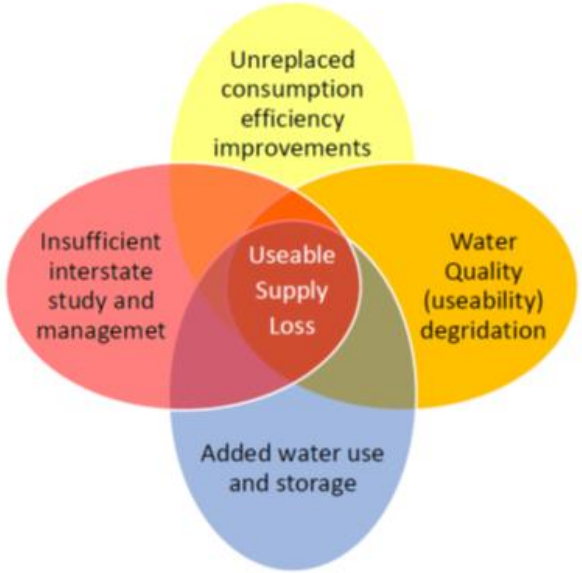


Rivers and Aquifers flow from other states.



Interstate compacts not everywhere

Cimarron Stateline Groundwater Gage



Actions depleting supply from other states.

GMD3 Interstate Waters Coordination

Groundwater management,
Read more about it.

http://www.gmd3.org/what-we-do/management-program/