Building a Multi-Discharger Variance Process

The Kansas Lagoon MDV Experience

ACWA Permit Writers Workshop

September 17, 2019

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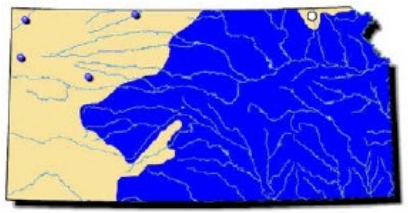
Started with 2013 Ammonia Criteria

- 2013 – new NH_3 criteria
  - KS criteria based on mussels present
  - Drops 1999 chronic criteria by about 54%
  - Makes acute criteria temperature dependent
  - Analysis showed most modern mechanical plants could meet
    - Those that could not, needed upgrades or optimization anyway
    - Have the wherewithal to make changes

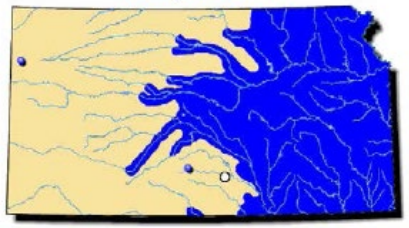
Pondhorn



Lagoons cannot meet criteria year round

- Winter and summer limits more stringent
- Low tech operations, few options for change
- Similar situations: "Class Action" Multi-Discharger Variance

Maple Leaf



History

- 2006 – KDHE first alerted EPA R7 that upcoming ammonia criteria would be difficult for facultative lagoons to meet
- 2013 – Ammonia criteria are established
- 2015/08 – WQS Regulatory Revisions Rule
- 2015 & 2016 – Frequent meetings to develop
  - KDHE internal – Bi-weekly
  - KDHE/EPA – Monthly
  - KDHE draft regulations developed by both WQS and NPDES staff
    - Significant back and forth with EPA to hone in
- 2017 – KDHE developed proposed rule (criteria & variance process)
  - Placed on public notice 7/2017; hearing 10/2017; approved in 5/2018
- July 2018 – First NPDES permits with variances for ammonia issued
- As of October 1, 2019, 23 towns have variances

Kansas WQS Variances

- Time-limited designated use and criterion that reflects the highest attainable condition (HAC) due to one of seven factors listed in 40 CFR 131.10(g) & 131.14(b)(2)(i)(A)(2)
- Compliance with all other underlying water quality standards (WQSs), technology based effluent limitations (TBELs) and water quality-based effluent limitations (WQBELS) is still required
- All variances are considered WQSs
  - Subject to the public participation process
- A variance may be requested and adopted for:
  - Individual discharger
  - Multiple dischargers
  - Waterbody specific

Kansas WQS Variances

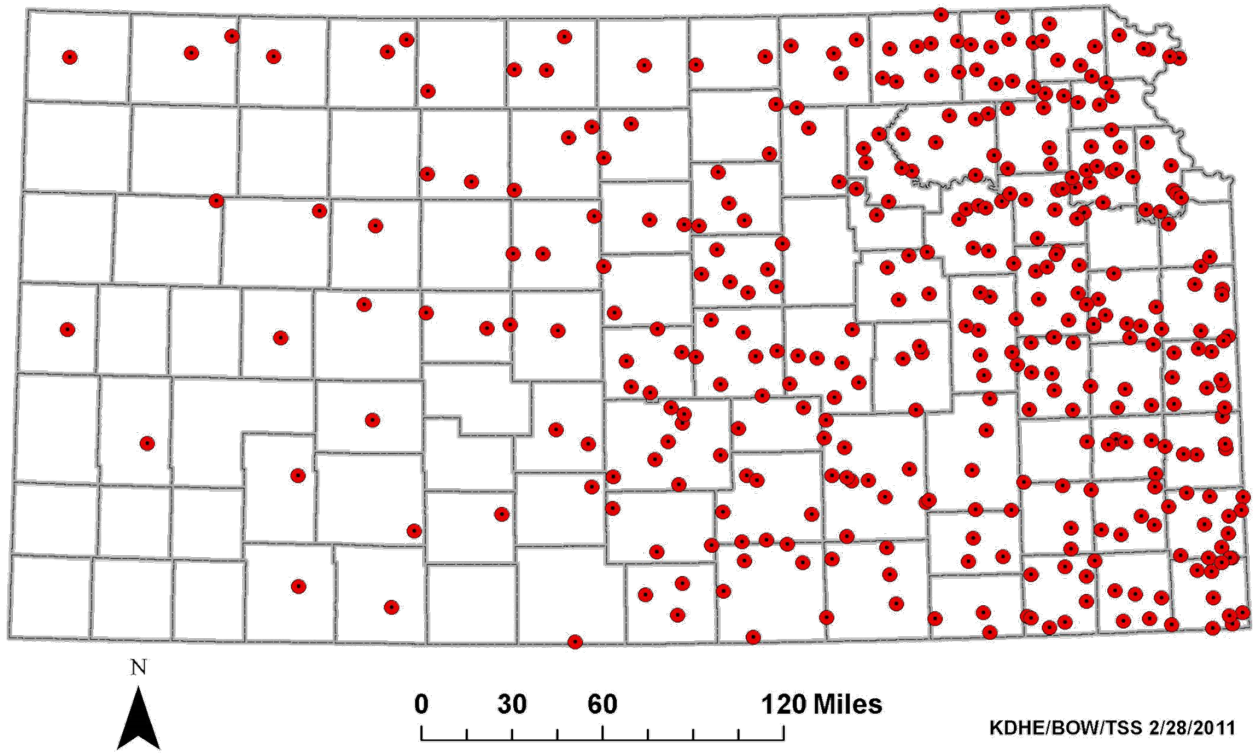
- Multiple-discharger Variance (MDV) for ammonia driven by factor 6 in 40 C.F.R. 131.10(g)
  - "Controls more stringent than those required by sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact"

Manhattan Kansas Wastewater Treatment Plant
Manhattan Kansas Population: 54,852
Median Household Income: $50,065

Chetopa Kansas
Population: 1050
Median Household Income: $36,660

Kansas NH_3 MDV

Municipal Discharge Lagoons



Process and Implementation

- Identify the need for a variance/MDV through:
  - Criteria and/or designated use assessments
    - Why can't the criteria or designated use be met
    - Will more than one discharger or type of discharger benefit?
  - Studies for current technological improvements and/or a new facility and associated costs
    - Alternatives
    - Small town demographics and sociology
  - Economic assessments
    - Can the discharger afford technological improvements or a new facility?

Delegation of Kansas NH3 MDV Eligibility

- Eligibility determination process
  - **Water Quality Certification/WQS** will:
    - Review NPDES permit and calculate new ammonia criteria limits
    - Assess whether limits can be met based on available historical ammonia effluent data
      - 1. If insufficient data, recommend monitoring, revisit next cycle
      - 2. If facility can meet the limits – variance not needed, get limits
      - 3. Proposed limit is so high, it presents no reasonable potential
      - 4. If facility cannot meet the limits – assess eligibility for variance

Delegation of Kansas NH3 MDV Eligibility

- Eligibility determination process

  - **NPDES** will:
    - calculate primary screener – calculate the percent of MHI that city sewer utility residential customers would be paying to fund a **new mechanical plant**
      - 1. If municipal primary screener > 4.0%, than alternate effluent limits are calculated
      - 2. If municipal screener is < 4.0%, calculate secondary screener
    - calculate secondary screener – Can city afford to build a new mechanical treatment facility?
      - Bond ratings, net debt, unemployment, tax revenue

Kansas NH3 MDV Eligibility

- MDV decision
  - If determined to be eligible for the MDV: alternate NH_3 effluent limits (HAC criteria limits) will be developed by **WQS**
    - 99th percentile of recent historical effluent discharge data (serves as the HAC criteria limit)
    - Monthly and quarterly monitoring data assessed against alt limit
  - **NPDES** will develop a Pollutant Minimization Plan to hold the line and seek improvement
  - The alternate ammonia effluent permit limit and the Pollutant Minimization Plan (PMP) will be included in the NPDES permit issued by **NPDES**

Worksheet E- EPA 2013 Ammonia Criteria Limits - Mussels Present (whole state)
Use this worksheet to calculate alternate limts when adequate data is available.
Discharger: City of Chetopa NPDES Permit #: M-NE13-OO01 Date: 2/27/2018

Annual DATE	mg/L	VIOLATIONS
03/23/11	3	No
03/15/12	1.3	No
03/20/14	4.2	Yes
03/18/15	0.76	No
03/31/16	3.96	Yes
3/30/2010	2.7	No
3/26/2009	5.2	Yes
4/2/2013	1.2	No
3/30/2017	6.86	Yes
6/27/2012	0.16	No
6/26/2014	0.85	No
6/18/2015	0.5	No
6/29/2016	0.1	No
6/23/2010	0.37	No
6/23/2009	1.6	Yes
6/30/2017	<.10	No
9/25/2008	0.53	No
9/26/2013	0.1	No
9/26/2012	0.1	No
9/26/2014	0.1	No
9/29/2015	0.1	No
9/29/2016	1.47	No
9/28/2010	0.88	No
9/29/2009	0.1	No
9/27/2017	<.10	No
12/29/2010	5.4	No
12/18/2012	1.8	No
12/23/2015	0.1	No
12/18/2008	4.6	Yes
12/22/2009	8.2	Yes
12/16/2014	0.97	No
12/26/2013	4.4	No
12/28/2016	0.66	No
12/22/2017	<.10	No

Max (Highest Limit)	
Annual	8.2

99th Percentile Alternate	
Annual	7.80

Chronic Permit Limit (Monthly Average)	
Jan	4.57
Feb	4.57
Mar	3.52
April	2.53
May	1.81
June	1.20
July	1.07
Aug	1.00
Sep	1.36
Oct	2.07
Nov	3.47
Dec	4.51

Acute Permit Limit (Daily Maximum)	
Jan	10.22
Feb	10.22
Mar	9.75
April	6.60
May	4.46
June	2.84
July	2.51
Aug	2.34
Sep	3.25
Oct	5.23
Nov	9.59
Dec	10.22

Water Quality Certification Recommendation:
(Log recommended limitations by the type of limitation being recommended.)

2013 Limits Recommended:

HAC Limits Recommended:

99th Percentile Alternate Annual
Limits Recommended: 7.80 mg/l

Insufficient data - Monitoring Recommended:

Additional Notes:

Kansas NH3 MDV Eligibility

ASSESSMENT OF SUBSTANTIAL IMPACTS MATRIX

Secondary Score	Municipal Preliminary Screener		
	Less than 1.0 Percent	Between 1.0 and 2.0 Percent	Greater than 2.0 Percent
Less than 1.5	?	X	X
Between 1.5 and 2.5	✓	?	X
Greater than 2.5	✓	✓	?

Secondary Score:_____

Key:

? Uncertain, studies need to be performed.

X No, the city cannot afford the proposed mechanical plant and the variance can be granted.

✓ Yes, the city can afford the proposed mechanical plant and no variance will be granted and the city is not eligible for the MDV. A city or facility may, on its own, request an individual variance.

Lessons Learned

- Get **WQS** and **NPDES** staff talking if variances are implemented by a NPDES permit
- **Leadership** must delegate responsibilities and tasks to both staff to get it done; resolve disagreements
- Develop the process with an eye toward implementation, thus **WQS** creates the alternative; **NPDES** creates the pathway to place in the permit
- **WQS** documents the impact to the water; **NPDES** documents the justification for the facility
- With small communities such as KS, the work falls on KDHE to determine variance eligibility
- The community has to commit to the conditions embodied by the PMP to maintain the "break" provided by the variance

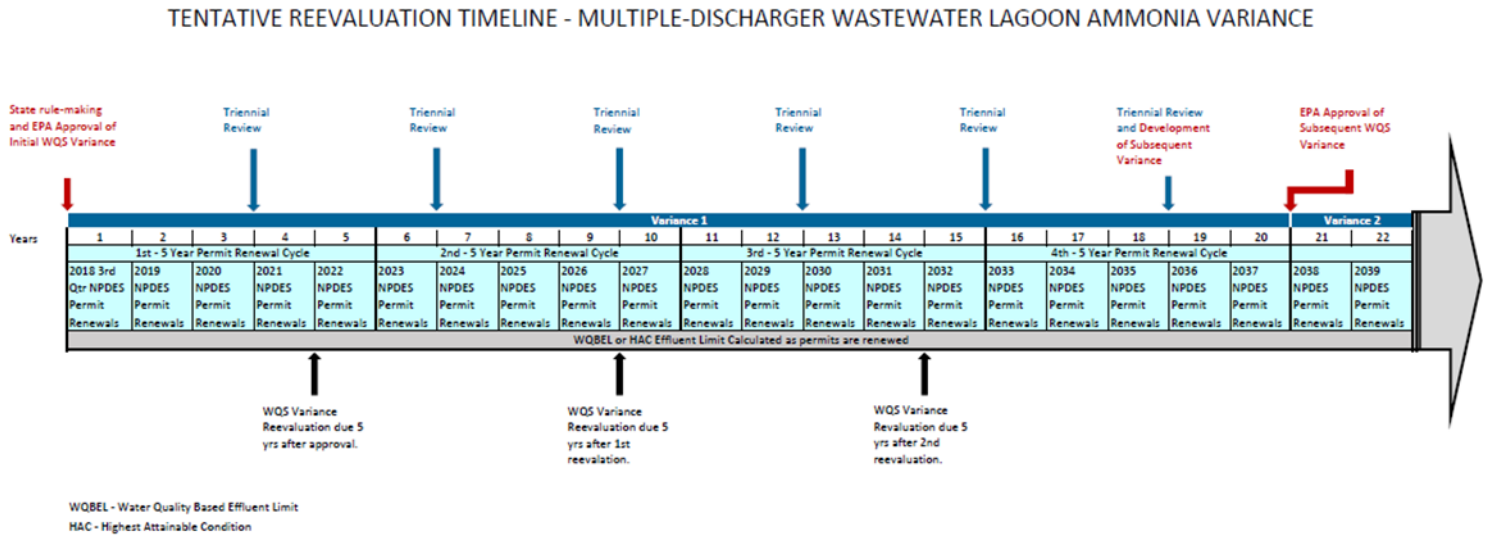
Ammonia Multiple-Discharger Variance: Recipients

Version 2.0, June 27, 2019

Printable Version of Table Seen Below

Discharger	NPDES Permit Number	KS Permit Number	Receiving Water Body			Highest Attainable Interim Effluent Limit - Unit mg/L (May be seasonal)	Economic Eligibility Assessment Score - Prelimnary Screener †	Economic Eligibility Assessment Score - Secondary Screener ◊	Date Variance Went into Effect for the Permit	Multiple-discharger Variance Reevaluation Date
			HUC8	Segment or Lake Project Name Code	Text Name of Receiving Water Body					
Altamont, City of	KS0045918	M-NE01-OO01	11070205	27	Deer Creek via Unnamed Tributary	4.5	2.05	2.50	1-Jul-18	1-Jul-23
Americus, City of	KS0047406	M-NE02-OO01	11070201	5	Allen Creek via Troublesome Creek via Pester Creek	7.5	2.93	2.20	1-Jul-18	1-Jul-23
Arma, City of	KS0045926	M-NE03-OO01	11070207	27	First Cow Creek via Unnamed Tributary	9.9	3.13	2.40	1-Jul-18	1-Jul-23
Chetopa, City of	KS0031135	M-NE13-OO01	11070205	28	Neosho River via Town Creek	7.8	3.29	1.80	1-Jul-18	1-Jul-23

MDV Tentative Reevaluation and Subsequent MDV



Contact Info

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All Variance Documents Can Be Found at:

http://www.kdheks.gov/tmdl/kswqs.html