Matthew G. Bevin Governor

Charles G. Snavely Secretary Energy and Environment Cabinet



Commonwealth of Kentucky Public Service Commission 211 Sower Blvd. P.O. Box 615 Frankfort, Kentucky 40602-0615 Telephone: (502) 564-3940 Fax: (502) 564-3460 psc.ky.gov Michael J. Schmitt Chairman

> Robert Cicero Vice Chairman

Talina R. Mathews Commissioner

#### September 25, 2017

#### PARTIES OF RECORD

Re: Case No. 2016-00142 Minutes of the Information Session and Public Meeting Roy Collier Community Center August 29, 2017

Attached is a copy of the memorandum summarizing the public meeting held August 29, 2017, in Inez, Kentucky, which is being filed in the record of the above-referenced case. If you have any questions, please contact David Spenard, Staff Attorney, at 502-782-2580.

Sincerely,

John S. Lyons Acting Executive Director

DES/ph

Attachments

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#### COMMONWEALTH OF KENTUCKY

#### BEFORE THE PUBLIC SERVICE COMMISSION

)

In the Matter of:

#### INVESTIGATION OF THE OPERATING CAPACITY OF MARTIN COUNTY WATER DISTRICT PURSUANT TO KRS 278.280

CASE NO. 2016-00142

#### MINUTES OF THE INFORMATION SESSION AND PUBLIC MEETING ROY COLLIER COMMUNITY CENTER INEZ, KENTUCKY AUGUST 29, 2017, 5:30 P.M.

A public information session and public meeting was held at the Roy Collier Community Center in Inez, Kentucky on August 29, 2017. Andrew Melnykovych, Director of Communications for the Public Service Commission, conducted the information session during which he introduced the Commission and Commission Staff, and explained the procedure and protocol for the information session and public hearing. Mr. Melnykovych then presented an overview of the legal basis, criteria and review process for the Commission's consideration of applications for proposed rate increases. The presentation included a general overview of the instant application, and an explanation of which aspects of this case are within the Commission's jurisdiction. Peter Goodmann, Director, Kentucky Division of Water, also gave a presentation during the information session. Mr. Goodmann provided an overview of the Safe Drinking Water Act, the Kentucky Drinking Water program, and compliance issues facing public water systems. Mr. Goodmann discussed Martin County Water District ("Martin District") including Martin District's recent water quality testing reports. The information session included a question-and-answer period.

At the conclusion of the information session and after a short intermission, Vice Chairman Robert Cicero initiated the public hearing portion of the meeting. Commissioner Talina R. Mathews was also in attendance at the public hearing portion of the meeting. Chairman Michael J. Schmitt is not participating in this matter and did not attend the public meeting. Vice Chairman Cicero provided a brief overview of the case at bar and the parties involved, and explained the procedure and protocol for the taking of comments. Vice Chairman Cicero then invited the public to make comments to the Commission regarding Martin District. Vice Chairman Cicero stated that the Commission would also receive written comments on Martin District.

The Commission's July 31, 2017 Order required the commissioners of Martin District, Martin District's general manager of operations, and Martin District's general manager of finance to attend the August 29, 2017 public meeting. Martin District was also required to secure the attendance of its contractors, Greg Heitzman and Linda Sumpter, CPA, at the public meeting. The following commissioners of Martin District attended the August 29, 2017 public meeting: Nita Collier, John Haney, and William Harvey. John Horn did not attend the public meeting. Joe Hammond, Martin District's general manager of finance, and John Mills, Martin District's general manager of operations, attended the public meeting. Greg Heitzman and Linda Sumpter, CPA, attended the public meeting.

The following individuals spoke<sup>1</sup> at the public meeting to ask questions, express concerns, and make suggestions:

<sup>&</sup>lt;sup>1</sup> These Minutes summarize the comments of each speaker. The complete comments of each speaker are available for review in the video recording of the public meeting that is in the public record for the case.

 <u>Arlen Mollette</u>: Mr. Mollettee stated he is a commissioner of the city of Inez, Kentucky. Mr. Mollette asked if Martin District will ever be fixed.

2. <u>Deborah Blevins</u>: Ms. Blevins stated she lives in Warfield, Kentucky. She stated she lives on a fixed income and she maintains water service. Ms. Blevins stated the water provided by Martin District has rusted out her bathtub; further, she stated she has experienced a significant smell of chlorine in the water. She discussed her and her daughter's health issues. Ms. Blevins stated she does not drink the water provided by Martin District.

3. <u>Bessie Morrison</u>: Ms. Morrison stated she lives in Debord, Kentucky. She stated since the 1970s, she has been receiving notices that Martin District is out of compliance with drinking water requirements. She stated several neighbors have died of cancer. She stated several of her neighbors have cancer and her son has been diagnosed with two separate types of tumors in his spine. She asked what will happen to her grandchildren if Martin District does not get the water straightened out. She stated if the cause of the health problems is not the water, she wants to know what is going on in Martin County to cause these problems.

4. <u>Nina McCoy</u>: Ms. McCoy stated in 2000 she started keeping notices concerning Martin District's water service and has collected numerous notices over the years. She discussed the warnings that have been issued. She asked the following questions of each Martin District commissioner. Does Martin District really think that contaminants are a problem and the warnings have merit? If the answer to the question is "no," then does any commissioner of the Martin District have any scientific research to refute the warnings in notices? Further, she wants to know if the commissioner believes

-3-

that the science behind the research concerning the warnings is silly or that drinking water regulations are just for sissies.

5. <u>Lillian Stacy</u>: Ms. Stacy stated she lives in Beauty, Kentucky. She stated Martin District personnel stated that they had been reading her water meter. She stated she documented mud in the meter pit and, further, she asserted the meter could not be read due to the mud. She asked why are they building courthouses in Martin County. She stated Martin District does not care what happens to people in Martin County.

6. Marian Krom: Ms. Krom stated she lives between Beauty and Warfield, Kentucky. She stated in the last four years there have been six water leaks that have lasted more than a week. She has had to call almost daily to get the leaks fixed. She stated there have been no boil water notices. She stated Martin County has the capability to telephone people in the event of a tornado or other similar event. She asked why this type of notification is not given for water leaks. She stated the amount of the charge imposed for bottled water at the schools is a disservice to the children. She asked what is happening to the revenue for the bottled water sold to children at the schools. She does not know how many times the local health department has checked the water at the schools. She wants to know whether the local health department is checking the restaurants and places that make their own ice because the soft drinks are using contaminated water. She stated they are not letting the citizens of Martin County know such things. She stated there are pregnant women in Martin County who cannot afford bottled water. She wanted to know the rate of birth defects in Martin County in comparison with birth defects in other parts of Kentucky and with other states. She stated Martin District has been out of compliance for approximately 20 years and is not capable

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of regulating itself. Ms. Krom stated the commissioners of Martin District deny that there is a major problem. She stated citizens of Martin County are trapped. She asked what industry is going to locate in Martin County when people who move into Martin County are unable to access safe water.

7. <u>Gary Ball</u>: Mr. Ball stated he lives in Wolf Creek, Kentucky. He expressed appreciation for the Commission travelling to Martin County for the public meeting. He stated the Director of Division of Water did not know that Martin District was out of compliance for the first two quarters of 2017, and he was disappointed with the Division of Water's response. He stated there is money to fix the problems. Mr. Ball stated there has been no system-wide flushing in years and Martin District's lines are nasty. He stated he does not drink Martin District water but he does use the water for showering and brushing his teeth. He wants a clear answer on contamination. He wants to know whether Martin District would be agreeable to allowing an entity such as the University of Kentucky to conduct water sampling in people's homes. He thinks there is a difference between the sampling that takes place in the distribution system and sampling that takes places in a home.

8. <u>James Fannin</u>: Mr. Fannin stated he lives in Milo, Kentucky. Mr. Fannin indicated that the way to fix the problem is to put clean water into the supply lines at the water plant and do not let the supply lines leak. He stated Martin District does not have its priorities right. Martin District only has two people fixing leaks. He stated if Martin District does not get a handle on its water loss, it will never get it right.

9. <u>Pam Mullins</u>: Did not offer a public comment.

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10. <u>James Shepherd</u>: Mr. Shepherd stated he lives in Inez, Kentucky. Mr. Shepherd stated he recently had to get a visiting family member who had showered in the water medication for itch relief. Mr. Shepherd stated he does not drink or cook with the water; further, he stated he does not give the water to his dog. He stated Martin District's water service is his only option and that something needs to be done.

11. <u>Joe Stepp</u>: Mr. Stepp stated he lives in the Warfield area and he has been advised by his doctor to not use Martin District's water to wash any of his breathing equipment. He believes they should have safe water for washing medical equipment and for personal use in the county.

12. <u>Mitchell Horn</u>: Mitchell Horn stated he is from Hardin Bottom. He stated he will not drink the water and tells his guests to not drink the water. He stated he will brush his teeth in the water while his wife will not. He stated he thinks that he will have to stop washing his medical equipment in the water. Mr. Horn stated he is already paying more for clean water. Mr. Horn stated he pays \$50.00 a month, separate from and in addition to his water bill, for clean drinking water for his family, guests, and himself. He stated he would not let his dog drink water supplied by Martin District. He stated many people in Martin County are on a fixed income and cannot afford bottled water. Mr. Horn stated the elderly are more affected by the contaminants. He stated the cards from Martin District contain print that is too small to read. Per Mr. Horn, a willful determination has been made by Martin District to use print too small to read and the practice is deceptive. He wants to know who made the decision to use small print on the notices. He wants to know why Martin District does not purchase all of its water requirements from Prestonsburg. He stated Martin District has ignored previous orders since 2002 and failed to comply with

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things they agreed to comply with in the past. He asks why they will now comply by answering questions brought up at the public meeting.

- 13. Jerrod Slone: Did not offer a public comment.
- 14. Nancy Newsome: Did not offer a public comment.
- 15. <u>Rachel Ball</u>: Did not offer a public comment.
- 16. <u>Claude Mollette</u>: Did not offer a public comment.
- 17. <u>Phyllis Mollette</u>: Did not offer a public comment.

18. <u>Tangarie Mollette</u>: Ms. Mollette stated she was very appreciative for the Commission being in Inez. She stated she has had a health problem for four months. She stated it is not right that they do not have drinking water fit to drink or take showers in. Ms. Mollette stated the doctor thought her illness is, more than anything, due to the water. She stated there has to be a solution for everybody that they can afford. She asked Martin District's commissioners what they would do to fix the problem if it was members of their families who were sick.

19. <u>Regina Tripplett Jones</u>: Ms. Jones stated she is a regional representative from the Office of U.S. Senator Rand Paul and has been asked by Senator Paul to attend the meeting and listen to all of the comments as well as the presentations made by the Public Service Commission and the water department. Senator Paul has been following this matter for some time and would like to be involved in the final resolution. She stated her Grandmother still lives in Martin County and has horrible water. Senator Paul has some suggestions for federal funding. The U.S. Environmental Protection Agency ("EPA") is now funding a grant program under Section 2104 of last year's WIIN [Water Infrastructure Improvements for the Nation Act] Bill for small and disadvantage

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communities. The focus of the grant program is water infrastructure. Another resource that may be helpful is the water finance clearinghouse, a site the EPA launched a month ago, which compiles and organizes funding-related resources for drinking water and wastewater infrastructure. She indicated that Senator Paul's Office is happy to work with everybody to help find funding sources.

- 20. Kenneth Goforth: Did not offer a public comment.
- 21. <u>Victor Slone</u>: Did not offer a public comment.

22. Pamela Blevins: Ms. Blevins stated she is from Tomahawk, Kentucky. She stated she has lived in Martin County since 2002. She discussed her health issues and stated she has experience problems with itching similar to those identified by previous speakers in the public meeting. She stated she uses Martin District's water to wash her clothes. Ms. Blevins stated some days Martin District's water smells like rotten eggs, some days it smells like bleach, and some days it smells like oil. She discussed people that she knows in Martin County who have cancer. She stated three guarters of Martin County is on a fixed income and are below the poverty level. She stated if you cannot afford bottled water, then you have no choice. Ms. Blevins stated that when you have to buy bottled water then you have to go without medication, groceries, and necessities, and you also have to make more trips to the doctor. More than one doctor has told her not to drink the water. Ms. Blevins questions: Does Martin District have to pass an audit to qualify for money? Has Martin District ever passed an audit? If Martin District has not passed an audit, then why did it not pass the audit? Could the commissioners of Martin District be removed? She state that the commissioners of Martin District do not want an audit.

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23. Jenna Patrick: Ms. Patrick stated she is from Tomahawk, Kentucky. She stated she appreciates the Commission being in Martin County. She stated she is in good health and added that she has well water. She stated she has four grandchildren in school in Martin County and one is continuously sick with diarrhea and vomiting while he is in school. She stated the child is not sick during the summer, and she stated her belief the water at the school is responsible for the child's sickness. She has a concern the water at the school is not being considered or identified as a source of the problem for children who are ill.

24. <u>Gerri Ball</u>: Ms. Ball stated she lives in Lovely, Kentucky. She discussed her health issues. She stated she is on a fixed income and pays \$180 a month for a medication. She stated she cannot give her cats Martin District water. She stated they just want to be able to go to the spigot, turn it on, get a drink or make a cup of coffee, give the water to their animals, or take a bath.

No other members of the public wished to make a comment. The public meeting was then adjourned. All persons in attendance were asked to sign-in. The sign-in sheets are attached hereto as Appendix A. The Kentucky Division of Water presentation is attached hereto as Appendix B.

The following questions and concerns were submitted at the August 29, 2017 public meeting by written comments.

1. <u>John Kirk</u> asked the following questions. For the last ten years, what is the average annual percentage of Martin District's income that has been spent on maintaining its water system? Why should Martin District be given extra funding or be given permission to increase rates when it should have been spending the money it was already

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receiving for services to maintain its system? Why should the current organization be allowed to continue oversee Martin County Water District after years of mismanagement which has left the water system grievously neglected and which has continuously failed to meet water standards?

2. <u>Lisa Smith Stayton</u> stated the Martin District distribution line servicing her house is a dead-end line, the water in the line is stagnant and has either a foul, rotted odor or a strong chlorine order. She stated they frequently experience uncomfortable skin irritations after showering. She stated sediment in the water has damaged and destroyed appliances and coated their in-ground pool. She stated they also experience outages, discolored water, and low or fluctuating pressure with their water service and are forced to buy bottled water to drink.

3. <u>Shelby Horne</u> stated she has low water pressure, the water is unsafe, and she can tell when the water is off by the air in the line. She stated she needs safe drinking water.

4. <u>Ursula Dingess</u> stated her greatest concern is the safety of the water and that she buys other water to drink. She wants to know what happened to the money allocated to Martin District. She thinks it would be wonderful to have fresh safe water to drink.

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#### APPENDIX A

#### APPENDIX A TO A PUBLIC MEETING SUMMARY OF THE KENTUCKY PUBLIC SERVICE COMMISSION IN CASE NO. 2016-00142 DATED SEP 2 5 2017

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Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

Name	Address	DO YOU WISH TO SPEAK?
1 John M	ich	VES NO
2 BEVERLY CI	plyrae	YES
3 Tommy Cri	obtree	YES NO
- 4 Delidraly	Bleins	YES NO
5 Clinton Mu	lluas	YES NO
6 Bessie mon	rison	YES NO
7 Nina MECON	1	YES NO
8 Mickey ME	4	YES NO
- 9Lillion =	& Tary	YES NO
10 Marian Kron	- 7	YES NO

Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

Name	Address	DO YOU WISH TO SPEAK?
1_maker Kan	×	YES NO
2 froma fin	2	YES NO
3 Paloreno	DE!	YES NO
- 4 Juny Bal	'e	YES NO
5 Thenes 2 lo	min	YES NO
- 6 Jannes Big	Harmin	YES NO
7 Dellie May	nad	YES NO
8 Kathy Stepp		YES NO
9 Joen Stepp		YES NO
10 Lladys Harmon		YES NO

Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

Name	Address	DO YOU WISH TO SPEAK?	
1 Rory Prater		YES NO	
2 Branton Mare	Inolds	YES NO	$\triangleright$
3 Jones Kant Pyl		YES NO	Ď
4 Brut Shan		YES NO	Ś
5 Earyetto Hillm	a	YES NO	3
6 Johnes E. Cielipher		YES NO	
7 Harry Dauge		YES NO	$\mathbf{r}$
8 Aug A Marie		YES NO	P
9 Richard P. 1	Marice	YES NO	-
10 Rada Parson		YES NO	

Case No. 2016-00142 – Martin County Water District Investigation

Inez – August 29, 2017

Na	ame	Address			DO YOU V TO SPE	
1-	Pam Mullins	POBOX 251	Lovely K	, 41231	YES	NO
12	JAMES & Shepherd		/		YES	NO
3	Mary Cromer		Whiksbu	way Ky	YES	NO
4	Mitchell Horn			7	YES	NO
5	Bonnie Horn				YES	NO
6	Adam Sizemore	508 West Ter	my Adence	Louisville, K	YES	NO
7	Tonya Mollet	t			YES	NO
8_	Shaw Dun	1		1997 - 1997 - 1997 I. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997	YES	NO
9	Jimbo Delle	2			YES	NO
10_	1) Minia Stepp	ų.			YES	NO

Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

١	lame	Address	DO YOU WISH TO SPEAK?
1_	Dolla Callorving		YES NO
2_	Storn Ball		YES NO
3_	Riter foodman-		YES NO
4_	_ John MURA		YES (NO)
5_	Nancy Neuroma		YES NO
6_	Phyllis Mollette		YES NO
7_	Janearie mollette		YES NO
8_	mango tril		YES NO
9_	Barleana Kilk		YES NO
10	, Phillig Kirt		YES NO
	. )		

Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

Name	Address	DO YOU V TO SPEA	
17 and DS	fle	YES	NO
12 JATTOD SLONE		YES	NO
13 Rachy Ball	-	YES	NO
+4 Claute ma	UH	YES	NO
+5 Kein L. Mol	ette	YES	NO
6 John Mal	ite	YES	NO
7 Ed Danul	3	YES	NO
8 Room Sitt		YES	NO
9 Shelby Horn	e	YES	NO
10 Loger helt	A Comes . US Sprallow Hunc	Plue (YES)	NO
$\begin{bmatrix} 0 \end{bmatrix} = \begin{bmatrix} 1 \end{bmatrix}$	J A		

Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

Name	Address	DO YOU TO SPE	
1 <u>K</u>	ta Stafford Bar 57, Ine Kg 41224	YES	NO
2 Rory	Bialcoki Po Box 943 Tree, ky 41224	YES	NO
3 Ko	gak Kick Anuskal	YES	NO
4	anothing Fama	YES	NO
5	and fland and	YES	NO
<u>6</u> D.	Howard	YES	NO
7_Le	enaved Stayton, P.O. Bac 1386, Znez, KY C11226	4YES	NO
8	steven Goble	YES	NO
9 10	ndd & Maznendo	YES	NO
10 <i>D</i>	nord R. Minney	YES	NO

Case No. 2016-00142 – Martin County Water District Investigation

Inez – August 29, 2017

N	ame	A	dress			DO YOU V TO SPE	
1_	Bill	Darm 1	PO Bex	306	INEZ	41227YES	NO
2_	ALVIN	PAULEY				YES(	NO
3_/	Lisa Sta	utton Po Box9	38 Thez K	9004		YES	NO
4_	Metissa	Phelps Po B	* 1404 (	her Ky	41224	YES	NO
5_	Delovis	Brown				YES	NO
6_	Billie	F)-etcher			¥	YES	NO
7_	Irsula	Dingese				YES	(NO)
8_	DULE	17 Smith				YES/	NO
9_	Kenn	the Gozorth				YES	NO
10	Jun	Panle-				YES	NO

Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

Name	Address	DO YOU WISH TO SPEAK?
1 Rosenary Salmon		YES NO
2 Harm Ally EKB TV		YES NO
3 Sandra Gojorth	· · · · · · · · · · · · · · · · · · ·	YES NO
4 Jule Slave	Lovely, Ky.	YES NO
5 Jamela Blevin	Somahawky Key	YES NO
6 Great Halpin		YES
7 Jun Bin	Iver Ky	YES NO
8 Eugene Moore	Pilgrend, Ky	YES NO
9 Thelma Moore	Pygrein Kg	YES NO
10 Greta Maynard	Sher Kry	YES NO
0	2	

Case No. 2016-00142 – Martin County Water District Investigation

Inez – August 29, 2017

Ν	ame Address	DO YOU V TO SPE	
1_	Lee Mueller	YES	NO
2_	glara Ray Jemahark Kis	YES	NO
3_	Barbara Tauley Velgum, Key 4120	YES	NO
4_	Amber Stepp J	YES	NO
5_	Chris Harris StateRep	YES	NO
6_	•	YES	NO
7_		YES	NO
8_		YES	NO
9_		YES	NO
10		YES	NO

## MARTIN COUNTY WATER DISTRICT COMMISSIONERS AND STAFF PUBLIC MEETING - SIGN-IN SHEET

Case No. 2016-00142 – Martin County Water District Investigation Inez – August 29, 2017

### PLEASE SIGN IN NEXT TO YOUR NAME



#### APPENDIX B

#### APPENDIX B TO A PUBLIC MEETING SUMMARY OF THE KENTUCKY PUBLIC SERVICE COMMISSION IN CASE NO. 2016-00142 DATED SEP 2 5 2017

"Compliance and other challenges for Martin County Water District" Presentation Notes to the Martin County Public Hearing

> Pete Goodmann, Director Division of Water August 29, 2017

# Safe Drinking Water Act

- Established in 1974, protects public drinking water supplies throughout the nation. Under the SDWA, EPA sets standards for drinking water quality and with its partners implements various technical and financial programs to ensure drinking water safety.
- Authorizes EPA to establish minimum standards to protect tap water and requires all owners or operators of public water systems to comply with these primary (health-related) standards.
  - The SDWA is broad and complex, requiring many actions to protect public health by regulating the nation's drinking water supply, including its sources (rivers, reservoirs, groundwater)

# Safe Drinking Water Act

- SDWA requires public water systems to comply with several rules
  - Each rule has its own requirements to addresses various contaminants via:
    - Treatment Techniques
    - Monitoring and Reporting
    - Public Notice

\*Requirements are commonly tiered based on size (# customers served and source water (surface water vs. groundwater)



# **SDWA Drinking Water Rules**

 Establish regulatory goals and standards that protect public health by requiring treatment of drinking water for various contaminants

\* Taste and Odor, Color



- Microbial Organisms
- Organic Chemical
  Pollutants
- Inorganic Pollutants
- Radionuclides
- Aesthetic Concerns\*
- Other issues
  - Lab Certification
  - Operator Certification



## Kentucky Drinking Water program

- EEC has the "primacy" authority to implement and enforce the rules promulgated under the SDWA for PWS
- Division of Water enforces the rules of the SDWA, which are based on water quality, relying on monitoring and reporting, and public notice to indicate what going on with a PWS
- People in Martin County have expressed frustration that DOW has not done more to get MCWD operating
- DOW has limited authority: DOW authority extends only to noncompliance/violations of specific SDWA rules and standards. These standards are health based standards and do not include utility operations and management, asset management, etc.
  - DOW does NOT issue operational permits under the SDWA
  - DOW does NOT require strategic planning or asset management under the SDWA

\* This is changing, more states are developing operational regulations, such as asset management regulations for PWSs

## Kentucky Drinking Water program

- DOW and its contractors (KRWA) <u>do</u> provide technical assistance to optimize treatment of water to meet compliance objective.
- DOW <u>does</u> provide assessments of PWSs technical, managerial and financial capacity and technical assistance to optimize PWS operation
- These are not enforceable programs. These efforts are intended to assist PWSs toward sustainability and resilience



## The Big PWS Challenges facing PWSs

- Compliance
  - Disinfection Byproducts; dozens of Kentucky PWSs struggling here
  - Emerging Contaminants and new rules
- Operations/Mgmt and Finance (e.g. rates, debt service)
  - Are PWS properly managed; who is in charge?
  - Do the PWS's rates reflect the true cost to operate and maintain the system
  - Does the PWSs cash flow cover expenses, debt service, etc.
- Asset Management, Financial Sustainability and Funding
  - Is a system properly depreciating, managing and funding its aging infrastructure?

\*MCWD is struggling with all of these challenges

# **Disinfection By-Products**

- What are DBPs? Disinfection agents such as chlorine and chloramine are introduced into water in order to destroy pathogenic microbes, to oxidize taste/odor-forming compounds, and to form a disinfectant residual so water can reach the consumer tap safe from microbial contamination.
- These disinfectants may react with natural organic matter in water to produce a range of DBPs such as the trihalomethanes (THMs) and haloacetic acids (HAAs)



## Why are DBPs a Health Concern?

- Research indicates that certain byproducts of water disinfection have the potential to be harmful.
  - linked to increases in cancer incidence, including bladder cancer
  - Linked to liver, kidney, central nervous system problems, reproductive effects
  - may be linked to anemia
  - These are low-level risks based on long-term (chronic) exposures
- There are significant uncertainties in risk assessments of disinfection byproducts.
  - Some research results are contradictory; some studies show links to adverse health effects and others do not.

# Why are DBPs a Health Concern?

- EPA considers both <u>risk</u> and <u>uncertainty</u> in establishing standards for water disinfection.
  - EPA had to weigh the public health benefits of disinfection against the risks of the potentially harmful disinfection byproducts.
  - EPA established limits for certain disinfection byproducts which are linked to health effects such as bladder cancer.
  - EPA and other organizations continue to conduct research on disinfection byproducts.



# **Disinfection By-Products: Solutions**

- Limit the amount of natural organic matter in contact with disinfectants
  - Enhanced coagulation to remove organic matter
    - Operational optimization
  - Feed Powder Activated Carbon (PAC); or
  - Use of Granulated Activated Carbon (GAC) filters
  - Use alternate pre-disinfectants/oxidizers (H2O2, KMnO4, NaMnO4)
  - Move the disinfection/chlorination point to post-settling (e.g. top of filters)
  - Manage water age within the distribution system
    - Tanks turnover, aeration
    - Remove dead-end lines
    - Establish an effective flushing program to manage the age of water

# **DBPs - MCWD progress at the WTP**

## DOW Technical Assistance

- Conducted jar testing to optimize the coagulation, flocculation and settling process
- Added pre-disinfectant (KMnO4)
- Optimized the carbon feed
- Moved the disinfection points to top of filters
- DBP numbers in the plant changed from baseline 47 ppb HAAs and 71 ppb TTHMs to 14 ppb HAAs and 24 ppb TTHM
  - Compliance: 60 ppb HAAs and 80 ppb TTHMs

## **DBPs - MCWD progress: TTHMs**





## **DBPs - MCWD progress: HAA5s**





# Water Loss/Pressure Mgmt

- DOW's contractor/partner, KRWA has provided significant technical assistance to MCWD
  - Leak detection and location
  - Fixing leaks/managing water loss
  - Managing pressure zones through proper valve and tank operation
  - Reducing overall water loss in the system



Pete Goodmann, Director Division of Water 300 Sower Blvd. Frankfort, Kentucky

## 502-782-6956 Peter.Goodmann@ky.gov

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