



Kentucky Water Resources Research Institute
Lindell Ormsbee, Director

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AUG 02 2019

**PUBLIC SERVICE
COMMISSION**

July 30, 2019

Ms. Gwen Pinson
Executive Director
Kentucky Public Service Commission
P.O. Box 615, 211 Sower Blvd.
Frankfort, KY 40602-0615

RE: Application for Approval of Training Course for Continuing Education Credit

Dear Ms. Pinson:

The Kentucky Water Resources Research Institute and has scheduled a multi-utility training event at Berea College in Berea, Kentucky, on September 23, 2019. The training event includes material from the "Sustainable Management of Rural and Small Systems Workshop," which was developed by the US EPA and the USDA and focuses on ten key management areas for small drinking water and wastewater utilities. The workshop is being offered at no cost to the participants through financial support provided by USDA.


We have enclosed the following materials in support of this application:

- 1) The name and address of the application (included in this transmittal letter).
- 2) The name and sponsor of the program and the subject matter covered by the program (included in this transmittal letter).
- 3) A summary of the content of the program (training summary/timed agenda is attached)
- 4) The number of credit hours requested by the program: 6
- 5) The name and relevant qualifications and credentials of each instructor presenting the program: Lindell Ormsbee, Greg Heitzman, and Steve Evans, resumes and curriculum vitae are attached.
- 6) A copy of written materials given to attendees (class PowerPoint slides are attached)

We respectfully request that the training be approved for 6 hours of continuing education credits as management training for commissioners of water districts as referenced in 807 KAR 5:070. More specifically, approval is being requested to satisfy the annual training requirements of KRS 74.020(6). The sustainable management workshop has previously been approved by the PSC and DCA for training events held in 2017, 2018, and 2019.

If you have any questions or require any further documentation, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Lindell Ormsbee". The signature is written in a cursive style with a long horizontal flourish at the end.

Lindell Ormsbee, P.E., P.H., Ph.D., D.WRE
Director, Kentucky Water Resources Research Institute
Raymond-Blythe Professor of Civil Engineering
Associate Director, UK Superfund Research Center

SUSTAINABLE MANAGEMENT OF RURAL AND SMALL SYSTEMS WORKSHOP AGENDA

September 23, 2019

Alumni Building, Berea College
101 Chestnut Street, Berea, KY 40404

8:30 am – 4:30 pm

FACILITATOR(S): Lindell Ormsbee, PhD, PE, Kentucky Water Resources Research Institute;
Greg Heitzman, PE, MBA, BlueWater Kentucky;
Steve Evans, Kentucky Water Resources Research Institute

Time	Session
8:30	Sign-in/Registration (30 minutes)
9:00	Introductions and Workshop Objectives (15 minutes) [Lindell]
9:15	Session 1: Overview of Key Management Areas – Presentation (30 minutes) [Greg] <ul style="list-style-type: none"> • Presentation of Key Management Areas • Group Discussion: Other Important Management Areas for Sustainability
9:45	Session 2: Utility ‘Self-Assessment’ Exercise (60 minutes) [Steve] <ul style="list-style-type: none"> • Explain “Sustainable Management Self-Assessment” (5 minutes) • Participants Conduct Self-Assessment (20 minutes) • Explain Plotting of Results: achievements vs. priorities (5 minutes) • Participants Plot Results (10 minutes) • Table Discussion (20 minutes) <ul style="list-style-type: none"> ○ What are your areas of focus (the orange and red areas)? ○ Why are they an area of focus? ○ What are the commonalities and differences among table participants’ achievements, priorities, and challenges? ○ What lessons can you learn from the other utilities at your table that you could use to improve your performance? ○ How might your perspective on these priorities change if you are an: <ul style="list-style-type: none"> ▪ Operator ▪ Manager ▪ Board Member ▪ Judge Executive
10:45	Break (15 minutes)

- 11:00** **Session 3: Plenary Discussion – Self Assessment Results (60 minutes)**
- Tables Report Out (30 minutes) **[Steve, Greg]**
 - *Guest Speaker: TDB (20 minutes)*
 - Synthesize Results by Plotting Entire Group (10 minutes) **[Steve]**
- 12:00** **Lunch (60 minutes)**
- 1:00** **Session 4: Improving Outcomes (75 minutes)**
- Tips from previous Improving Outcomes Exercises (25 minutes) **[Lindell]**
 - Each participant completes an improvement worksheet for one low achievement/high priority management area (10 minutes) **[Steve]**
 - Discussion Questions:
 - What will constitute ‘**high achievement**’ in this management area and what are the causes of your achievement gaps?
 - What changes will the utility need to make to **improve performance** and who will need to be involved for these changes to take place?
 - How could you track your performance progress?
 - What will be the **biggest challenges** to performance improvement?
 - Participants share improvement worksheet results at their tables (10 minutes)
 - Tables Report Out (20 minutes) **[Steve, Greg]**
 - General Discussion of Findings (10 minutes) **[Greg]**
- 2:15** **Break (15 minutes)**
- 2:30** **Session 5: Tools, Guides and Other Resources (30 minutes)**
- Presentation of Additional Tools, Guides and Other Resources **[Greg]**
 - *Guest Speaker: TBD (20 minutes)*
- 3:00** **Session 6: Creating an Action Plan (45 minutes)**
- Discuss Utility Management Improvement Plan **[Steve]**
 - Complete a Sustainable Management Action Plan Worksheet
 - Tables Report Out **[Steve, Greg]**
- 3:45** **Session 7: Sharing Success Stories (15 minutes) [Greg]**
- 4:00** **Session 8: Next Steps (15 minutes) [Greg]**
- 4:15** **Session 9: Feedback Session (15 minutes) [Steve]**
- 4:30** **Adjourn**

Lindell E. Ormsbee, P.E., P.H., PhD, D.WRE. F.ASCE, F.EWRI
 Raymond-Blythe Professor of Civil Engineering
 Director, Kentucky Water Resources Research Institute
 Director, Tracy Farmer Institute of Sustainability and the Environment
 Associate Director, University of Kentucky Superfund Center
 233 Mining and Minerals Building
 Lexington, Kentucky 40506-0281
 Ph: 859-257-6329
 Email: lindell.ormsbee@.uky.edu

Education

University of Kentucky	Civil Engineering BSCE	1978
Virginia Tech	Civil Engineering M.S.	1979
Purdue University	Civil Engineering PhD.	1983

Professional and Academic Experience

2018 – Present	Executive Director, Tracy Farmer Institute of Sustainability & Environment
2011 - Present	Director, Kentucky Center for Excellence for Watershed Management
2008	Member, BOSC Review Committee, EPA Homeland Security Program
2005 – Present	Associate Director, UK Superfund Research Center
2004 – Present	Director, Kentucky Water Resources Research Institute
2003 – Present	Raymond Blythe Endowed Professor of Civil Engineering
2003 – 2009	Director, Kentucky Research Consortium for Energy and the Environment
2004 – 2007	Chair, Kentucky Environmental Quality Commission
2003 – Present	Director, Research Translation Core, UK Superfund Research Center
2002	Vice President, American Institute of Hydrology
2002 – 2003	Chair, Nuclear Subcommittee, KY Governor’s Energy Advisory Board
2001 – 2002	Director, Tracy Farmer Center for the Environment
1999 – 2004	Kentucky River Basin Coordinator
1999 – 2001	Associate Director, Kentucky Water Resources Research Institute
1998	President, Kentucky Section, American Society of Civil Engineers
1997 – 1998	Visiting Researcher – Kentucky Environmental Protection Agency
1996 – 2003	Full Professor of Civil Engineering, University of Kentucky
1989 – 1996	Associate Professor of Civil Engineering, University of Kentucky
1983 – 1989	Assistant Professor of Civil Engineering, University of Kentucky
1979 – 1981	Project Engineer, Howard K. Bell Consulting Engineers

Research Expertise

Dr. Lindell Ormsbee is the Raymond-Blythe Professor of Civil Engineering at the University of Kentucky. He currently serves as the director of the Kentucky Water Resources Research Institute, the executive director of the Tracy Farmer Institute for Sustainability and the Environment, the director of the Kentucky Center of Excellence for Watershed Management, and the associate director of the University of Kentucky Superfund Research Center. Over a thirty five career, Dr. Ormsbee has served as a PI or Co-PI on over \$22 million in research funding, and a collaborator on \$40 million in additional research funding. From 1983 to 2000, Dr. Ormsbee partnered with Dr. Don Wood at the University of Kentucky in translating water distribution system research into commercial software (KYPIPE). During that same time period, he taught over 150 workshops and short courses dealing with KYPIPE applications, ultimately training thousands of students and engineers. These efforts have led to the application of water distribution system research to thousands of water distribution systems both in the US and around the world. Dr. Ormsbee has extensive experience working on hundreds of water distribution systems, including several

at DOD facilities, including Fort Knox and the Federally Owned Water Main System in Washington, DC (including Fort Myer and the Pentagon).

Professional Licensure

Registered Professional Engineer: Kentucky (21484)

Registered Professional Hydrologist: American Institute of Hydrology (1552)

Honors and Awards

Julian Hinds Award, American Society of Civil Engineers

Service to the Profession Award, American Society of Civil Engineers

Fellow, ASCE Environmental and Water Resources Institute

Fellow, American Society of Civil Engineers

Diplomate: American Academy of Water Resource Engineers

Relevant Publications

Hernandez, S., Saad, A., Ormsbee, L., Bhattacharyya D, (2016) "Nanocomposite and Responsive Membranes for Water Treatment," *Emerging Membrane Technology for Sustainable Water Treatment*, edited by Nicholas Hankins and Rajindar Singh, Elsevier, Boston, 2016, Pages 389-431, ISBN 9780444633125, DOI:10.1016/B978-0-444-63312-5.00016-4

Lingireddy, S. Lindell E. Ormsbee, Don J. Wood, and D. Ramalingam, "Design of Water Distribution Systems," *Encyclopedia of Water*, Ed. Jay Lehr, John Wiley & Sons, 2005.

Lingireddy, S., Ormsbee, L.E., Wood, D.J., (2005) "Calibration of Hydraulic Network Models," *Encyclopedia of Water*, Ed. Jay Lehr, John Wiley & Sons, 2005.

Ormsbee, L., "Chapter 8: Advanced Issues" in AWWA M32: Manual of Practice, 2004.

Goldman, F, Sakarya, A., Ormsbee, L, Uber, J., and Mays, L. "Chapter 16: Optimal Operation of Water Distribution Systems" in *Water Distribution System Handbook*, Ed. Larry Mays, McGraw Hill, 2000.

Ormsbee, L, and Lingireddy, S., "Chapter 14: Network Model Calibration" in *Water Distribution System Handbook*, Ed. Larry Mays, McGraw Hill, 2000.

Coyle, E., Ormsbee, L., Brion, G., (2014) "Peracetic acid as an alternative disinfection technology for wet weather flows, WEF Water Environment Research, Vol. 86, (8), pp 675-686.

Ormsbee, L.E., Walski, T.M., Chase, D.V, Sharp, W.W., *Techniques for Improving Energy Efficiency at Water Supply Pumping Stations*, Engineering Technical Letter No. 1110-11186, Department of the Army, U.S. Army Corps of Engineers, Washington, D. C. 20314-1000, 1987, 242 pp.

Synergistic Activities

1. Co-Developer, KYPIPE Water Distribution System Network Analysis Software [One of the most widely used water distribution software platforms in the world]
2. Training of Water Utility Operators and Engineers (conducted over 150 workshops)

Greg Heitzman, P.E., MBA

Greg Heitzman is President of BlueWater Kentucky, a management consulting firm serving the water and wastewater industry. From 2011 to 2015, he served as Executive Director/CEO of the Louisville Metropolitan Sewer District (MSD). Prior to MSD, he worked 31 years with the Louisville Water Company serving as Chief Engineer from 1991 to 2007 and President/CEO from 2007 to 2013.

In his executive roles for Louisville MSD and Louisville Water, Greg provided leadership for Mayor Fischer's One Water Partnership to consolidate water services and administrative functions of Louisville MSD and Louisville Water. Greg also led strategic initiatives to expand water and wastewater services in the region, develop high performance teams, establish model programs for corporate controls (policy, procedures and work instructions), and develop new lines of business and technology to enhance revenue and reduce costs.

Greg obtained his Bachelor and Master's degrees in Civil Engineering from the University of Kentucky and an MBA from the University of Louisville. He is a licensed Professional Engineer in Kentucky and recipient of AWWA George Warren Fuller Award. He is an active member in both AWWA and the Water Environment Federation/Association. He currently serves on the following industry and community Boards: Water Research Foundation; Water Information Sharing and Analysis Center (Water ISAC); Louisville Water Foundation; Better Business Bureau; and Tree Louisville Commission.



Steven J. Evans, Assistant Director

Kentucky Water Resources Research Institute
233 Mining and Mineral Resources Building
University of Kentucky, Lexington, KY 40506-0107

Telephone: 859-257-1299
Fax: 859-323-1049
Email: steve.evans@uky.edu

EDUCATION

M.A. (Education), Georgetown College, 2004
B.S. (Biology), University of Kentucky, 2001

PROFESSIONAL EMPLOYMENT

2017 – Present: Assistant Director, Kentucky Water Resources Research Institute, Lexington, KY.
2010 – 2017: Project Manager, Third Rock Consultants, Lexington, KY.
2006 – 2017: Environmental Scientist, Third Rock Consultants, Lexington, KY.
2005 – 2006: Lab Director and Quality Assurance Director, EnviroData Group, Lexington, KY.
2004 – 2005: Biology and Inorganic Chemistry Laboratory Section Manager, EnviroData Group, Lexington, KY.
2002 – 2004: Lab Technician, EnviroData Group, Lexington, KY.

RESEARCH INTERESTS

Watershed management and planning, water quality monitoring and analysis, stormwater management with emphasis on illicit discharge detection and identification and public involvement and low impact development, stakeholder involvement and education, geospatial mapping and analysis, and environmental permitting.

PROFESSIONAL SERVICE ACTIVITIES

2017-Present: Interagency Technical Advisory Committee on Groundwater, Chair
2017-Present: Lexington Stormwater Stakeholders Advisory Committee
2017-Present: Watershed Water of Kentucky, Science Advisor
2017-Present: Kentucky River Watershed Water, Board Member
2018-Present: Friends of Cane Run, Vice President
2018-Present: University of Kentucky MS4 Working Group
2018: American Society of Civil Engineers – Kentucky Section: 2018 Infrastructure Report Card: Drinking Water Working Group

PROFESSIONAL MEMBERSHIPS

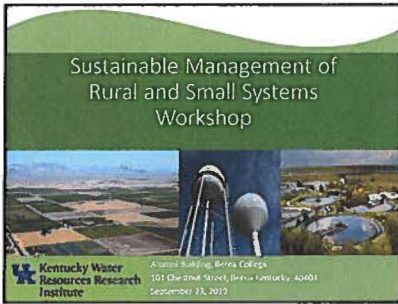
Kentucky Stormwater Association
Kentucky Academy of Science

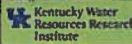
PUBLICATIONS/PRESENTATIONS

1. S. Evans. 2018. Water in Kentucky: How things are flowing at KWRRI. October 5, 2018. Kentucky Geological Survey Seminar Series.
2. Curl, Douglas C. and Steven J. Evans. 2018. Kentucky Water Quality Report Cards: Interactive Mapping Tools and Grading Algorithms to Communicate Science to the General Public. Geological Society of America Abstracts with Programs. Vol. 50, No. 6 doi: 10.1130/abs/2018AM-319377
3. Evans, S.J., M. McAlister. 2018. “The Clean Water Act.” Kentucky Watershed Academy Watershed Coordinator Training Series: Module 1. Full day workshop developed for Kentucky Division of Water and U.S. EPA. Presented on August 16, 2018.

4. Ormsbee, L. and S.J. Evans. 2018. "Sustainable Management of Rural and Small Systems Workshop." Workshop held July 9, 2018 at Fountain Run Water Utility. Kentucky Water Resources Research Institute in cooperation with West Virginia University.
5. Koyagi, E., S.J. Evans, and L. Ormsbee. 2018. Kentucky Water Resources Research Institute University of Kentucky Program Evaluation Report Fiscal Years 2011-2015. Office of External Research Water Resources Discipline U.S. Geological Survey. 118 p.
6. Evans, S.J. and Ormsbee, L. 2018. "Kentucky Water Resources Research Institute Annual Technical Report FY 2017." U.S. Geological Survey 104B Research Program Final Report. 121 p.
7. Koyagi, E. and S.J. Evans. 2018. "Kentucky Water Resources Annual Symposium Proceedings." Symposium held March 19, 2018 at Marriott Griffin Gate Resort, Lexington, KY
8. Gilbert, L. and S.J. Evans. "Watershed Organizations of Kentucky." Poster. Produced for Kentucky Division of Water and U.S. EPA.
9. Evans, S.J. 2018. "Communicating through Citizen Science: The Watershed Watch of Kentucky Experience." Invited speaker at Kentucky Geological Survey Annual Seminar 2019. Kentucky Geological Survey Core Library.
10. McAlister, M and S.J. Evans. 2017. "Kentucky River Watershed Watch: Summary of 2017 Sampling Results." Report produced by Kentucky Water Resources Research Institute. Funded by Kentucky River Authority.
11. Ormsbee, L; S.J. Evans, and K. Peterson. 2017. "Watershed Supply Report: Beam-Suntory, Loretto, KY." Kentucky Water Resources Research Institute. Project Report for Beam-Suntory Maker's Mark Facility.
12. Ormsbee, L; S.J. Evans, and L. Pacholik. 2017. "Watershed Sustainability Report: Beam-Suntory, Clermont, KY." Kentucky Water Resources Research Institute. Project Report for Beam-Suntory Jim Beam Facility.
13. Evans, S. J. and J. Shelby. 2017. "Combined Water Quality / Quality Assurance Project Report for Cane Run Comprehensive Watershed Based Plan." Third Rock Consultants. Project Technical Report for Kentucky Division of Water.
14. Evans, S. J.; J. Carey; D. Price; R. Walker; K. Miller; R. Lamey; L. Hicks; A. Rains. 2017. "Quality Assurance Project Plan: Lexington-Fayette Urban County Government Municipal Separate Storm Sewer System (MS4) Monitoring Plan." Third Rock Consultants. Prepared for Lexington-Fayette Urban County Government Division of Water Quality. Revision 2.
15. Evans, S. J.; J. Carey; D. Price; R. Walker; R. Lamey; L. Hicks; A. Rains. 2017. "Quality Assurance Project Plan: Lexington-Fayette Urban County Government Watershed-Focused Monitoring Plan." Third Rock Consultants. Prepared for Lexington-Fayette Urban County Government Division of Water Quality. Revision 2.
16. Olson, W.C. and S.J. Evans. 2016. "Severe Erosion Survey: Cane Run Watershed, Fayette and Scott County Kentucky." Third Rock Consultants. Project Technical Report for Kentucky Division of Water.
17. Evans, S. J. and J. Shelby. 2016. Technical Memorandum on Illicit Discharge Detection and Elimination Chemical Fingerprint Library. Third Rock Consultants. Prepared for Lexington-Fayette Urban County Government Division of Water Quality.
18. Evans, S.J. et al. 2016. "Chestnut Creek Watershed Based Plan, Marshall County, KY." Third Rock Consultants. Project Report for Friends of Clarks River National Wildlife Refuge. US EPA Section 319(h) Grant No. C999486-1-12.
19. Evans, S.J. and W.C. Olson. 2015. "Lexington-Fayette Urban County Government 2014 Annual Monitoring Report, Lexington, Kentucky." Third Rock Consultants. Prepared for Lexington-Fayette Urban County Government Division of Water Quality.
20. Olson, W.C. and S.J. Evans. 2014. "North Elkhorn Creek Watershed Assessment, Lexington, Kentucky." Third Rock Consultants. Prepared for Lexington-Fayette Urban County Government Division of Water Quality.

Sustainable Management of Rural and Small Systems Workshop





 Kentucky Water Resources Research Institute
 Alumni Building, Berea College
 101 One 2nd Street, Berea, Kentucky 40401
 September 23, 2019

Schedule of Activities

- Welcome and Introductions
- Workshop Objectives
- Key Management Areas
- Self Assessment Exercise**
- Lunch, Networking
- Improving Outcomes**
- Practices, Tools, and Measures
- Creating an Action Plan**
- Success Stories
- Next Steps

Key Utility Personnel

- The effective management of a water utility will require the active participation of a range of individuals:
 - Customers
 - Operators
 - Managers
 - Decision makers
 - City Officials
 - Mayors
 - City council members
 - Utility board members
 - County Officials
 - Judges
 - Members of the fiscal court



Welcome and Introductions

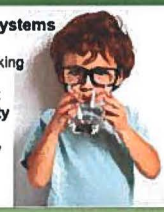
- Welcome
- Purpose of Workshop
- Introduction of Team Members
- Participant Introductions – Name, Community, Role
- Workshop Materials
- Meeting Logistics
- Meeting Agenda

Public Expectations

Public Water Systems

Provide safe drinking water at most appropriate cost

- ✓ Water Quality
- ✓ Reliability
- ✓ Affordability



Water Utility Management Involves a Range of Issues

- Managerial** Clear Roles, Effective Policies, Thorough Planning
- Financial** Budgeting, Accounting, Planning, Internal Controls
- Technical** Infrastructure, Source, Standards, Rights, Operators

Program Overview


- Phase I
 - Regional workshops
 - Explain 10 basic management areas
 - Perform general utility assessments
 - Identify possible goals and strategies
- Phase II
 - Individual utility workshops
 - Involve operators, managers, and decision makers
 - Develop feasible goals and strategies
 - Provide technical resources to help support implementation

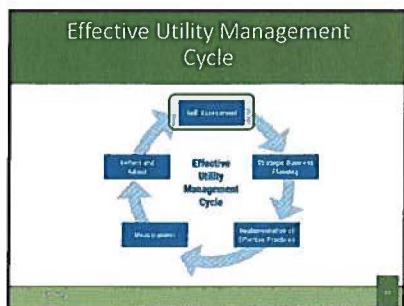
Common Challenges for Utilities

- Aging infrastructure that needs more intensive repair and replacement.
- Continuing regulatory changes, including the need to often balance priorities among multiple compliance endpoints.
- Workforce challenges, including an aging workforce and difficulties in recruiting and retaining qualified staff.
- Uncertainties about future funding opportunities.
- Competing local priorities and a dwindling resource base in many small communities.
- Uninformed or disengaged board members.

Keys To Management Success

- Leadership
- Strategic Business Planning
- Knowledge Management
- Measurement
- Continual Improvement Management



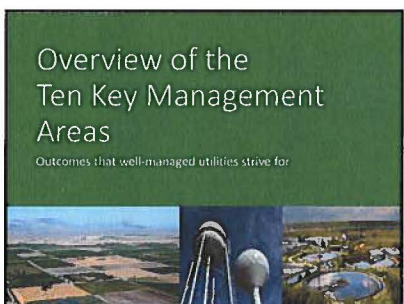


The Well-Managed Utility

- Ten Management Areas are framed as outcomes.
- They serve as building blocks for utility performance improvement:
 - Where to focus.
 - What to strive for.
- Most water and wastewater utilities pay attention to each of these areas and likely perform well in at least some of them.
- They can be used to fit into, draw on, and support asset management, long-term business planning, continual improvement management systems.

3. Customer Satisfaction

- Helps customers understand the value of water and their local utility.
- Knows what their customers expect in terms of service, water quality, and rates.
- Has developed a way to gather feedback from their customers, review the feedback, and then act on it.
- Sets goals to meet these expectations.
- Is able to respond to emergency conditions in a timely and efficient manner.



1. Water Resource Capacity Adequacy

- Ensures water availability consistent with current and future customer needs through:
 - Long-term resource supply and demand analysis
 - Conservation
 - Public education
- Understands the utility role in water availability.
- Manages operations to provide for long-term aquifer and surface water sustainability and replenishment.

4. Community Sustainability & Economic Development

- Is actively engaged in the local community.
 - Is aware of or actively engaged in discussions of community and economic development
 - Is aware of local business needs and opportunities for new residential or business customers
- Aligns Utility goals to be attentive to the impacts that utility decisions will have on current and future community and watershed health.
- Aligns Utility goals to promote community economic vitality and overall improvement.



2. Product Quality

- Produces potable water or treated effluent, along with process residuals that are:
 - In full compliance with regulatory and reliability requirements.
 - Consistent with customer, public health, and ecological needs.
 - Supportive of local economic development and business needs and opportunities.

5. Employee & Leadership Development

- Recruits and retains a workforce that is competent, motivated, adaptive, and is concerned about safety.
- Establishes a participatory, collaborative organization.
- Ensures employee institutional knowledge is retained and improved on over time.
- Creates opportunities for professional and leadership development.

6. Financial Viability

- Understands the full life-cycle costs of the utility and establishes and maintains an effective balance between:
 - Long term debt
 - Asset values
 - Operations and maintenance expenditures
 - Operating revenues
- Establishes predictable rates consistent with community expectations and acceptability – adequate to:
 - Recover costs.
 - Provide for reserves.
 - Address maintenance needs.
 - Plan and invest for future needs.
 - Maintain support from bond rating agencies

9. Operational Resiliency

- Ensures utility leadership and staff work together to anticipate and avoid problems.
- Identifies threats to the system (legal, financial, non-compliance, environmental, safety, security, and natural disaster) by conducting all hazards vulnerability assessment.
- Establishes acceptable risk levels that support system reliability goals.
- Identifies how to manage risks and how to implement appropriate response actions by developing and using an all-hazards emergency response plan.

Getting Started (Tab 2)

- Step 1: RATE your system's level of achievement (practice and performance) for each management area
- Step 2: RANK the importance of each area
- Step 3: PLOT the results
- Step 4: Identify area of focus

7. Operational Optimization

- Understands the operational performance factors (e.g., reliability of service, pressure, DBPs, overflows).
- Ensure ongoing, timely, cost-effective, and reliable performance improvements in all facets of operations (i.e., continual improvement culture).
- Minimize resource use, loss, and impacts from day-to-day operations (e.g., energy and chemical use, water loss).
- Maintain awareness of information and operational technology developments to anticipate and support timely adoption of improvements.

10. Stakeholder Understanding & Support

- Actively involves stakeholders in the decisions that will affect them:
 - By providing for a structure or protocol to engage stakeholders
 - By seeking to understand stakeholder needs and interests
 - By promoting the value of clean and safe water
- Creates understanding and support from oversight bodies, community and watershed interests, and regulatory bodies:
 - Service levels
 - Rate structures
 - Operating budgets
 - Capital improvement programs
 - Risk management decisions

STEPS 1 & 2: Rating Achievement and Ranking Priority

Self-Assessment Demonstration

- Use the table to rate your utility's achievement (first blank column) rate in the 10 key management areas: P – poor, F – fair, G – good.
- Use the table to rate the priority (second blank column) of each of the 10 key management areas for your utility: L – low, M – medium, H – high.

8. Infrastructure Stability

- Understands the condition and cost of each system component.
- Plans for system component repair, replacement, and enhancement over the long-term at the lowest possible cost.
- Coordinates asset repair, rehabilitation, and replacement within the community to minimize disruptions and other negative consequences.

The Self-Assessment Exercise

Time to go to work!

STEP 1: Rating Achievement

Scale from LOW to HIGH achievement

- Select Poor if your system has no workable practices in place for addressing this area – very low capacity and performance.
- Select Fair if your system has some workable practices in place with moderate achievement, but could improve – some capacity in place.
- Select Good if your system has effective, standardized, and accepted practices in place. It either usually or consistently achieves goals – capacity is high and in need of very little or no further development.

STEP 2: Ranking Priority

Scale from LOW to HIGH priority

- Review each of the five prioritization elements:
 - Crisis situations / urgency (near term or long term)
 - Current or expected challenges
 - Consequence severity (non-compliance, costs, health, safety)
 - Customer impacts (water quality, reliability of service)
 - Community priorities (economic development, quality of life)
- Select High if concerns for most elements (4-5) or a strong concern in several
- Select Medium if concerns for some elements (2-3) or a strong concern for one
- Select Low if concerns for few or none of the elements (0-1) and no strong concerns

STEPS 3 & 4: Plotting Results and Focusing Attention

Self-Assessment Demonstration

- Use the table on Page 5 of Tab 2 to write the two letters corresponding to each management area in the appropriate box that corresponds to intersection of the two ratings (i.e. the achievement rating and the priority rating).
- Example: Consumer Satisfaction (CS):
 - Good - G - Achievement
 - Medium - M - Priority

15 Minute Break

STEPS 1 & 2: Rating Achievement and Ranking Priority

Self-Assessment Demonstration

Take each management area one at a time:

- Review the definition of the management area.
- Rate the achievement level of the area.
- Rate the priority level of the area.

STEPS 3: Plotting Results

Self-Assessment Demonstration

Tables Report Out

STEP 3: Plotting Results

Self-Assessment Demonstration

Step 4: Self-Assessment Discussion Questions

- What are your areas of focus (the orange and red areas)?
- Why are they an area of focus?
- Are your areas of focus different or similar to the other utilities at your table?
- What lessons can you learn from the other people at your table that you could use to improve your performance?
- How might your perspective on these priorities change if you are an:
 - Operator
 - Board Member
 - Judge Executive

Guest Speaker

Group Plotting Exercise

Improving Outcomes

Creating a Plan, Taking Action, Measuring Results

Financial Viability

- **Examples of High Achievement:**
 - Having a strong bond rating
 - Having a positive cash flow
 - Maintaining an effective balance between long-term debt, asset values, operations and maintenance expenditures, and operating revenue.

Plotting Results (Tab 2, Page 5)

- Using the provided stickers for your utility, place a sticker on each of the 10 Key Management Boards located around the room in each of the same boxes that you recorded on your own plot.

Your Utility Plot

One of 10 boards located around the room (e.g. Consumer Service)

Tips from Previous Improving Outcomes Exercises

- Key management areas selected and discussed at previous workshops:
 - Financial Viability
 - Infrastructure Stability
 - Operational Optimization
 - Operational Resiliency
 - Stakeholder Understanding and Support
 - Employee and Leadership Development

Challenges/Changes

- It is uncomfortable and politically challenging to discontinue service to neighbors, acquaintances, elderly customers, or fixed income customers who have not paid their bills.
- It is difficult to communicate to elected officials and consumers about how much it costs to produce drinking water and process wastewater, making it a challenge to get rate increases approved.
- Customers feel that flat rate billing practices are unfair (low volume users paying the same as high volume users).
- Elected officials may make campaign commitments to no rate increases.

Try this: Understand a rate study to determine if current rates are adequate to meet both current and future needs.

More suggestions in Tab 6, Page 14.

Lunch

(1 Hour)

Financial Viability

Infrastructure Stability

- Infrastructure Stability Is Dependent Upon
 - Asset management
 - Capital planning

If you fail to plan, you are planning to fail.

Infrastructure Stability

Asset Management

Asset Management is maintaining a **desired level of service** (what you want your assets to provide)

At the lowest **life cycle cost** (best appropriate cost – not “no cost”)

Infrastructure Stability

Examples of High Achievement:

- Having an inventory of system components, location, installation date, and condition.
- Understanding of system operating parameters (e.g., pressure).
- Having a capital improvement plan.

Operational Optimization

Water/Energy Efficiency

Examples of High Achievement:

- Having an optimal energy rate schedule
- Using energy efficient pumps
- Minimizing water loss (i.e. < 15%)
- Maintaining a comprehensive maintenance program
- Proper pressure management

Infrastructure Stability

Five Core Components of Asset Management

- Current State of the Assets
- Level of Service
- Criticality
- Life Cycle Costing
- Long-Term Funding

Challenges/Changes

- Planning for repair and maintenance of infrastructure is hampered by a limited knowledge of the condition of existing infrastructure components.
- Many systems are trapped in a reactive repair and maintenance mode leaving little or no time for undertaking the proactive work needed to establish an asset management program.

Try this:
Create an inventory of your assets over time by setting up a register for logging assets. Log assets at the time that regular maintenance or emergency repairs are performed.

More suggestions in Tab 6, Page 15

Challenges/Changes

OPERATIONAL OPTIMIZATION

Challenges related to Operational Optimization include:

- High energy bills
- Improper maintenance of equipment
- Excessive water loss

Try this:
Conduct an energy audit
Identify locations of water loss
Inquire status of isolation valves
Monitor pressure regulating valves
Implement pressure management program
Replace energy inefficient system components
Sequence pump schedules with electric rate schedules

Infrastructure Stability

Tips for Capital Improvement Planning

- Set arbitrary minimum price for asset
- Stay realistic
- Five year minimum
- Justify need
- Coordinate with other projects
- Look at broad options
- Detail funding options
- Discuss openly

Operational Optimization

Water/Energy Efficiency

It is an expense on the whole system.

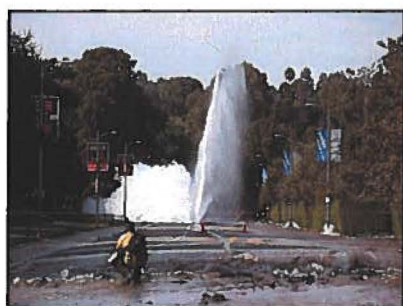
Operational Resiliency

Operation & Maintenance Plans

Maintain Assets

- Operations
 - Activities to keep water flowing
- Maintenance
 - Routine
 - Preventative
 - Predictive
 - Not emergency

Dimension of Value	Maintenance Important 30% of budget	Maintenance Extremely Important 45% of budget
	Maintenance Less Important 5% of budget	Maintenance Important 30% of budget
	Probability of Failure	



Stakeholder Understanding and Support

Communicating with Customers

- Bill boards
- Classes
- Consumer Confidence Reports
- Stations
- Newspapers
- Phone calls
- Posters
- Radio/TV
- Social media
- Special meetings
- Surveys

Don't let the water utility be your community's best kept secret

Think of customers as partners

Stakeholder Understanding and Support

The damage beyond the spill

If you don't frame the message.....

Operational Resiliency

Examples of High Achievement:

- Having emergency response plans, operations plans, shut-off checklists for equipment.
- Regular drills of the emergency response plan.
- Certified staff and board members.

Stakeholder Understanding and Support

It's all about the story and how we tell it

- Customers
- Elected Officials
- Board Members
- Manager
- Operators

Stakeholder Understanding and Support

.....the message will frame you

Obama v BP

The damage beyond the spill

Challenges/Changes

- A lack of system documentation.
- Insufficient time to conduct training and exercises on the emergency response plan.
- Employee and board member turnover makes it difficult to maintain familiarity with emergency response procedures and materials.

Try This:
Use all annual board meeting as an opportunity to distribute and review key emergency documents.

More suggestions in Tab 6: Page 16

Stakeholder Understanding and Support



Stakeholder Understanding and Support

.....the message will frame you

Obama v BP

The damage beyond the spill

Stakeholder Understanding and Support

Employee and Leadership Development







Table Activity


- Using the Improving Outcomes Worksheet provided at your table (also a copy in Tab 3) each participant should complete an improvement worksheet for **one** of the low achievement/high priority management areas identified by one of your table members. The worksheet has four questions to answer.
- After picking a management area, share perspectives on:
 - What will constitute "high achievement" in this management area?
 - What are potential causes for the achievement gaps?
 - What changes will the utility need to make to improve performance?
 - What will be the biggest challenges to performance improvement?

Stakeholder Understanding and Support



- **Examples of High Achievement:**
 - Having a **Capital improvement plan** or other document that summarizes utility priorities and can be shared with utility board.
 - Having standard **operating procedures** for utility staff that address communication.


Employee and Leadership Development



- **Examples of High Achievement:**
 - Having written job descriptions.
 - Providing clear performance expectations.
 - Making sure staff are cross-trained.

Table Activity


Using **IMPROVING OUTCOMES WORKSHEET**



Tab 3 in your notebook

Examples in Tab 6 in your notebook (pages 13-17)

Challenges/Changes




Customers and stakeholders display a lack of interest in gaining a better understanding of utility needs.

Customer resistance to paying water bills or supporting rate increases.

Try This:

Host an annual open house or barbecue at your facility for stakeholders and community members. Offer tours of the facility to crews and local media as a part of this event.

Challenges/Changes




- Employee motivation and opportunities for development can be hampered by lack of resources.
- Limited access to training opportunities can prevent personal and professional development.
- Lack of written job responsibilities can lead to uncertainty about management expectations and a lack of recognition for the work that is done.
- Time constraints on employees.

Try This:

Develop subgroups with mentoring systems to share training resources.

More suggestions in Tab 6: Page 13

Tables Report Out & Discussion



15 Minute Break

Rural and Small System Guidebook Tab 6 – Page 27

APPENDIX B: RESOURCES FOR RURAL AND SMALL SYSTEMS

Table 6-1: Financial Resources

Resource	Website	Notes
USDA/RUS	www.usda.gov/rurdev	USDA/RUS provides a variety of financing options for rural water systems, including revolving loan funds, direct loans, and grants.
NRWA	www.nrwa.com	NRWA provides a variety of financing options for rural water systems, including revolving loan funds, direct loans, and grants.
Water Infrastructure Finance Authority (WIFA)	www.wifa.gov	WIFA provides a variety of financing options for rural water systems, including revolving loan funds, direct loans, and grants.
Water Infrastructure Finance Authority (WIFA)	www.wifa.gov	WIFA provides a variety of financing options for rural water systems, including revolving loan funds, direct loans, and grants.

Financial Viability

NRWA: Revolving Loan Fund

- Established Under Grant from USDA/RUS
 - Rural Utility Service
- Financing for Pre-Development Costs
- Also Available for Equipment Replacement and Service Extension

Tools, Guides, and Other Available Resources

Online Resources

<https://www.rd.usda.gov/programs-services/services/sustainable-management-tools>

Financial Viability

EPA: Setting Small Drinking Water System Rates for a Sustainable Future

- Determining Revenue Needs
- Setting Rate Design
- Approaching Rate Implementation

Effective Utility Management

<http://www.watereum.org/>

Smart Management for Small Water Systems Project

Website: <http://efcnetwork.org/small-systems-project>

Topics:

- Asset Management
- Energy Management
- Fiscal Planning & Rate Setting
- Funding Coordination
- Managerial & Financial Leadership
- Water Loss Reduction
- Water System Collaboration
- Climate Resiliency

Financial Viability

RCAP: The Basics of Financial Management for Small-community Utilities

- Understanding Financial Statements
- Using Financial Ratios

Financial Viability: Environmental Finance Center Network

Website: <http://efcnetwork.org/>


Free Webinars:



Operational Optimization *Water/Energy Efficiency*

RCAP: Sustainable Infrastructure for Small System Public Services: A Planning and Resource Guide


- Water Conservation
- Energy Efficiency
- Renewable Energy



Stakeholder Understanding and Support

EPA: Talking to Your Decision Makers – A Best Practices Guide


- Role of Community Decision Makers in Small Systems
- Tips on How to Communicate Needs to Decision Makers



Infrastructure Stability

EPA: Check Up Program for Small System (CUPSS)


- Free Asset Management Tool for Small Drinking Water and Wastewater Utilities!
- Tips on How to Develop a Record of Your Assets, an Understanding of Your Financial Situation, and a Tailored Asset Management Plan.



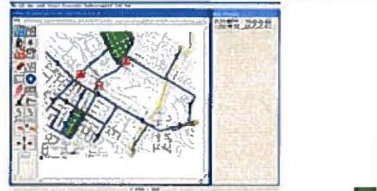
Stakeholder Understanding and Support

NRWA: Quality on Tap!

- Nationwide, Grassroots Campaign for Public Awareness
- Hands On Guide to Engagement and Communication for Better Community Support




Free KYPIPE Software



Operational Optimization *Water/Energy Efficiency*

EPA: Energy Use Tool for Water and Wastewater Systems


- Interactive, Excel-based tool
- Detailed Analysis of All Energy Types
- Provides Summary Report: Statement of Energy Performance




Stakeholder Understanding and Support

RCAP: The Big Guide for Small Systems: A Resource for Board Members

- Water and Wastewater Treatment Basics
- Regulatory Responsibilities
- Board Business
- Financial Duties and Responsibilities



Guest Speaker



Creating an Action Plan

Where do we go from here?

For Example...

Priority Management Areas:

1. Water Resource Adequacy
2. Product Quality
3. Financial Viability ← Select One

Action Plan Worksheet

Step 3: Complete the fields below to describe what is needed to complete your "Improvement Action"

Action Plan Worksheet

Tab 4 in your notebook

Action Plan Worksheet

Step 2: Choose an action that you could take to make improvements in your selected Priority Management Area.

For Example...

Description:	Eliminate early-payment discounts to cash account and increase service requests to discourage customers who move frequently or avoid paying later bills.
✓ Action (Management Area(s) addressed)	Financial Viability
✓ Objective(s)	Reduce the amount of money lost to unpaid bills
Timeline:	June 2018: Start -> high new compliance balance
✓ Start date	January and new service start requirements for new customers
✓ Milestones	July 2018: Present and approve new balance and discuss requirements at board meeting
✓ Target completion date	August 2018: Notify customers of new requirements
	September 2018: Completion - implement new balance and deposit requirements

Action Plan Worksheet

Step 1: Have each person fill out their top three priority management areas from the Self Assessment exercise and then pick one to work on.

For Example...

Priority Management Areas:


1. Water Resource Adequacy
2. Product Quality
3. Financial Viability ←

Improvement Action: merge process for issuing the number of outstanding bills

For Example...

Responsible Party (or Parties):	✓ Bill Smith
	✓ Jane Anderson
Indirect Resources (non-human or nonstaff):	✓ Existing information system for user manuals to support the current policy change
Challenges to Address:	✓ Public pressure on board members to reject the increases
Review Process:	✓ Milestone dates met
✓ Performance indicators or measures	✓ Weekly progress checks with utility director relative to identified milestones
✓ Status reports and updates	
Frequency/cycle	
Other Notes:	✓ Conduct calls with each biller monthly to explain the need for the policy change and answer their questions

Sharing Success Stories




Next Steps for Utility Leadership

- Next Steps for Judge Executive/Mayor/Board Member
 - Share what you have learned with other board members or utility manager/operators
 - Determine what actions may be needed to help implement the goals of your management improvement plan

Key Organizations in Kentucky


- KY Water Resources Research Institute (KWRI)
- KY Division of Water (KDOW)
- KY Division of Compliance Assistance (KCDA)
- Kentucky Rural Water Association (KRWA)
- KY Rural Community Assistance Partnership (RCAP)
- KY Infrastructure Authority (KIA)
- KY Public Service Commission (PSC)
- KY Water and Wastewater Operators Association (KWWOA)
- KY/TN AWWA/WEF
- KY Area Development Districts (ADDs)
- KY Cooperative Extension Service
- KY Center of Applied Energy Research (CAER)

Next Steps



Next Steps for Utility Manager

- Begin to implement your own workplan.




Tab 5 in your notebook

Feedback Session

Please complete your evaluation forms.

Thank you!



Next Steps for Your Utility

- Next Steps for Judge Executive/Mayor/Board Member.
- Next Steps For Utility Manager/Superintendent.
- Next Steps For Operator.

Next Steps for Utility Operator

- Next Steps for Operator
 - Share what you have learned with your utility's other operators.
 - Apply the assessment process you just went through to address your own operational issues.
 - Identify your operational issues
 - Assess the issues (priority and performance)
 - Identify key area(s) to focus on
 - Develop and implement an action plan