AGENDA

1. Welcome/ Introductions

2. Announcements

3. Update on Local Groundwater Management Efforts
   Dave Combs, Mike Lippert, Tim McLelland, Donna Runkle

4. OKI Staff Update

5. WIFIA*: What It Means to You
   Dave Weihrauch, City of Oxford, AWWA National Water Utility Council Member

6. Coal Ash Handling & Protecting Water Supplies in the Tri-State
   Tammy Jett, Duke Energy, Chair, Solid Waste Task Force, Ohio Utility Group

7. Other Business

*Water Infrastructure Financing Innovation Act
WATER INFRASTRUCTURE FINANCING and INNOVATION ACT (WIFIA)

—What it means to you—

OKI Groundwater Committee Meeting March 6, 2013

David Weihrauch,
AWWA Water Utility Council
Presentation Overview

• Infrastructure Finance - Background

• WIFIA Overview

• WIFIA Status
Longstanding AWWA focus on Infrastructure Finance

- *Reinvesting in Drinking Water Infrastructure*, May 2001
- *Avoiding Rate Shock*, April 2004
- *Thinking Outside the Bill*, November 2004
- *Water Infrastructure at a Turning Point*, May 2006
Infrastructure Finance

Followed by…

- *Financing Water Infrastructure*
  – February 2009

- *Buried No Longer, Confronting America’s Water Infrastructure Challenge*
  – February 2012
NESSIE is available soon to all AWWA Member Utilities as a no cost member utility benefit.

*Buried No Longer method goes local*
Over the next few weeks, all AWWA utility members will be receiving a complimentary copy of the Buried No Longer Pipe Replacement Modeling Tool in the mail. Based on AWWA’s *Buried No Longer* infrastructure report and the Nessie™ infrastructure analysis method, the tool allows utilities to build their own locally-specific *Buried No Longer* report, assess pipe replacement needs into the future, forecast the consequences for water bills, and tell their own infrastructure story to local officials, customers, and the media. Both the *Buried No Longer* report and the Pipe Replacement Modeling Tool were developed with support from AWWA’s Water Utility Council through the Water Industry Technical Action Fund. (It’s also available for [purchase](#) by non-utility members.)

Members are encouraged to use the tool when making the case for local water infrastructure investment and to advocate for a Water Infrastructure Finance and Innovation Authority (WIFIA). More information about the national infrastructure picture and the *Buried No Longer* report is available on the [AWWA website](#). We’ll be updating this page with some additional tools to help you tell your water infrastructure story by the time you receive the CD.

Note: We’ll also ship utility members printed copies of the *Buried No Longer* report while supplies last to hand out for board presentations, etc. Just email [Greg Kar](#) with the subject line, “Need BNL Reports”.

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[Greg Kar](#)
Infrastructure Finance

Collectively, these reports highlight:

• AWWA Position: Americans are best served by water systems that are self-sustaining through rates and other charges...

• More than 95% of water infrastructure is financed from local and state sources...

• There is a large and growing “gap” between the infrastructure financing need and available funding...
Infrastructure Finance

• However, there are important federal roles
  – Leadership in encouraging sound water infrastructure management practices
  – Lowering the cost of capital
Infrastructure Finance

• Primary goals
  – Increase the amount of capital for water infrastructure
  – Lower the cost (interest rate) of water infrastructure capital

• Secondary goal
  – Provide additional tool in “financing tool kit” to address unmet needs
Infrastructure Finance

The Emerging Legislation

• Water Infrastructure Financing and Innovation Act (WIFIA)
  
  – Patterned after TIFIA (Transportation Infrastructure Financing and Innovation Act), a successful, popular program
WIFIA Overview

• Provides credit support via loans, guarantees, and other forms of direct credit assistance

• To:
  – Water utilities for large projects too big for SRF’s and
  – SRF’s to assist them in leveraging their programs
How WIFIA Works

Water Infrastructure Finance and Innovation Authority

US Treasury

+ Interest

WIFIA

+ Interest

Water Projects

+ Interest

State Revolving Loan Funds

+ Interest
WIFIA Overview

• Minimal impact on federal budget because...
  – Default rates on water bonds are VERY low (.04%)
  – WIFIA loans are paid back to the Treasury

• Therefore...
  – Congress needs to only budget amount to cover the default risk...
  – In TIFIA, every $10 in loans requires only $1 in federal budget appropriation
WIFIA Overview

$400 million appropriation

= $4 billion in credit support
WIFIA Overview

Large Project Example

Annual Debt Service on $100 Million Loan

30 Year Municipal Bond @ 5.4%  $ 6,906,800

30 Year WIFIA Loan @ 4.04%  $ 5,811,129

Annual Savings  $ 1,095,671

30 year savings  $ 32,370,130

Debt Service Savings %  15.9%
WIFIA Overview

State Revolving Fund Example

Annual Debt Service on $30 Million Loan

30 Year Municipal Bond @ 5.4% $ 2,072,040
30 Year WIFIA Loan @ 4.04% $ 1,743,339
Annual Savings $ 328,701
30 year savings $ 9,361,030
Debt Service Savings % 15.9%
WIFIA Status

• Partners
  – Water Environment Federation
  – American Beverage Association
  – More to come
WIFIA Status

- Legislation
  - Representative Gibbs (R), Ohio, Chairman of the House Transportation and Infrastructure, Water Resources and Environment sub committee has drafted legislation and held two congressional hearings on WIFIA.

  - Senator Merkley (D), Oregon, Introduced S.335 the Water Infrastructure Finance and Innovation Act last month.

  - Senator Boxer (D), California, Chair of the Senate Environment and Public Works Committee, included WIFIA as Title X in the Water Resources Development Act during the last session of Congress.
WIFIA Status

Some Perspective

- AWWA does not want WIFIA to be part of a National Infrastructure Bank or SRF reauthorization
- Bad year for any grant program
- Marathon, not a Sprint
Legislative Challenges

• Such as:
  – Budget Offset
  – Offset vs. Budget Cuts
  – Congressional Timeline
  – and then there are the various members of Congress

  You never know what kind of questions you will run into about your issue!
WIFIA...

Funding more water infrastructure projects at lower cost.

Questions?

dweihrauch@cityofoxford.org
COAL ASH HANDLING IN SURFACE IMPoundMENTS AND PROTECTING WATER SUPPLIES

OKI Regional Council of Governments
Groundwater Committee
Tammy Jett
March 2013
What I am going to talk about

- Duke Energy Background
- What is coal ash & how is it handled
- TVA Kingston coal ash impoundment failure
- Duke’s actions to protect water
- USEPA proposed coal ash and effluent regulations
FACTS ABOUT DUKE ENERGY

- Largest electric power holding company in the United States
- 150+ years of service
- 29,250 employees
- Fortune 250 company
- $100 billion in total assets
- Headquartered in Charlotte
- International Business
U.S. FRANCHISED ELECTRIC AND GAS

- **6 states**: North Carolina, South Carolina, Indiana, Ohio and Kentucky, and Florida
- 104,000 square miles of service area
- 58,200 MW of owned U.S. generating capacity
- 7.1 million electric customers
- 500,000 gas customers
DUKE ENERGY INTERNATIONAL

- Approx. 4,000 MW of generating capacity
- 6 countries: Argentina, Brazil, Ecuador, El Salvador, Guatemala and Peru
- 4th largest generator in Latin America (based on net capacity)
Coal Ash

- Fly ash
- Bottom ash
- Boiler slag
- Gypsum
Where Does the Ash Go?

- Permitted landfill
- Beneficial use
- Ash impoundment = temporary storage
## Primary Beneficial Reuse Products

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<th>Reuse Category</th>
<th>2010 Totals (Tons)</th>
<th>2011 Projections</th>
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<td>Ready Mix Concrete</td>
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<tr>
<td><strong>Totals</strong></td>
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</table>
What Is An Ash Impoundment?

- “Ash Pond”
- “Ash Impoundment”
- “Lagoon”

Key focus areas for ash ponds
- Stability
- Groundwater
- Surface water
Protecting Water

- Monitoring
  - NPDES
  - Stability
  - Groundwater
- Evaluation and implementation of remedies if issues arise
- Dry ash handling?
Stability and Groundwater Issues & Remedy Implementation

- **Stability:**
  - TVA Kingston, Tennessee coal ash pond failure
  - Comparison to Duke Energy ash ponds

- **Groundwater:**
  - Update on Beckjord Station interceptor well
TVA Kingston Ash Pond in 2006
Kingston Ash Pond After 2008 Failure
TVA Kingston Ash Basin Dike Failure
TVA Kingston Ash Basin Dike Failure

- 300 acres of land covered in 4-6 ft. of ash
- 5.4 million c.y. of ash escaped
- 327 million gal. of water released
TVA KINGSTON PLANT ASH OPERATIONS

- Ash sluiced in open channel to settling ponds
- Dredged from settling pond to dredge cells
- Water flows to clear water pond and discharged to River.
TVA Kingston Ash Basin Construction

- As original pond filled more storage capacity was required
- TVA raised ash pond dikes with coal ash
- Continued to dredge to raised ash pond
- Repeated raising process as ash reached dike crest
Duke Energy Ash Pond Management and Operation

- Duke operates ash ponds differently than the Kingston pond was operated.
- Duke constructs pond dikes from clay or a composite of materials with liners.
- Ash is sluiced via pipes directly to the ash ponds.
- Duke active ash ponds are not ‘multi - stacked’.
- As ash ponds reach their useful life, they are dug or retired in place.
Groundwater: Beckjord Station Interceptor Well Update

- Elevated sulfate levels in public well fields north of a Beckjord Station ash pond
- Studies done to assess issues and possible remedies in the ash pond/public well field area
- Study results showed an interceptor well would be effective in mitigating elevated sulfate in public wells
Phase 3 - Conclusions

- Pump test data revealed P.U.B 6 effectively captured sulfate plume when operating
- Interceptor well designed to mimic P.U.B. 6 while allowing enough aquifer capacity for P.U.B. 6 operation
Phase 4 (Findings)

- Quarterly piezometric data revealed groundwater flow conditions across the site are highly variable because of influence of the Ohio River.
- Slight change in shape of capture zone due to influences from flood events and changes in P.U.B. well production.
- Over the first ten years of active interception, sulfate concentrations within the leading edge of the plume have reduced significantly.
Conclusions and Status

- Interceptor Well (IW-1) system, as designed, continues to capture groundwater containing elevated concentrations of sulfate. The shape of the capture zone is variable because of the changing stage of the Ohio River.

- Over the last seventeen (17) years, sulfate concentrations monitored directly downgradient of the capture zone have averaged between 70 and 84 ppm. From 2010 to present, concentrations averaged between 64 and 76 ppm (SMCL for sulfate - 250 ppm).

- Over the last twelve (12) years, sulfate concentrations in the vicinity of P.U.B. 6 have averaged 230 ppm (BW-2). An average sulfate concentration of 453 ppm was detected over the six (6) year period following IW-1 start-up.

- Overall size of the sulfate plume has diminished by approximately 28 percent since start-up of IW-1 (based on the aerial extent of the 100 ppm concentration contour).

- No more ash sluiced to Pond A and NPDES outfall structures removed
Proposed USEPA CCR Rule and Effluent Guidelines Rule

- TVA Kingston ash pond was a structural failure regardless of what was in it.
- Using Kingston as a spring-board to regulate coal ash
Proposed USEPA CCR Rule

- CCR rule proposal:
  - Ash pond closure – Clean closure vs. capping?
  - Groundwater monitoring around ash ponds and landfills
  - Liners for ash ponds and landfills
  - Federal vs. State oversight

- Rule schedule:
  - Lawsuit
  - 2014?

- Congressional Action?
Proposed USEPA Effluent Guidelines

- Potential areas covered under proposed rule:
  - Landfill leachate
  - Effluent from ash ponds
    - Bottom ash?
    - Fly ash?
  - FGD
  - Dry ash handling?
  - Best available technology
  - April 19, 2013 NPRM
  - May 22, 2014 Final Action
Summary

- There are different types of coal ash and different ways of handling coal ash.
- When it comes to ash ponds, stability, groundwater and surface water are the current key focus areas.
- Not all ash ponds are created equal.
- Water resources can be protected with good monitoring and maintenance practices.
- Remediation efforts can be successful when an ash pond is found to have impacts.
- Coming regulations are expected to enforce additional water protection measures.
QUESTIONS
OKI GROUNDWATER COMMITTEE MEETING SUMMARY
Wednesday, April 3, 2013
OKI Board Room – 10:00 a.m.

Attendees:
Bruce Whitteberry, Chair, Greater Cincinnati Water Works
Al Aspacher, ARCADIS
Lyle Bloom, Clermont County Water Department
Ken Broberg, S.M. Stoller
Dave Combs, City of Trenton
Elmer Dudas, City of Springboro
Andreas Eddy, City of Fairfield
Carl Gatton, Warren County Water and Sewer
William Gollnitz, Earthworks
Doug Hunter, Leggette, Brashears & Graham, Inc.
John McGinnis, Ohio EPA
Mike Lippert, City of Wyoming
Kyrstal McNutt, Miami Conservancy District
Terry Morris, City Springboro
Tim Neyer, Clermont County
Dean Niemeyer, Hamilton County Planning
Allison Reed, Ohio EPA
Richard Renneker, Committee Member
Donna Runkle, USGS
Adam Sackenheim, Butler County Water and Sewer Dept.
Becky Schmidt, Duke Energy
Ken Shearwood, Village of New Richmond
Tre Shelton, Greenspaces TSPC
Richard Stuck, Greater Cincinnati Water Works
Dean Walden, Village of Lockland
David Weihrach, Water Treatment Plant
Robert Wildey, Clermont General Health District
Tom Yeager, Southwest Regional Water District

OKI Staff:
Gayle Foster, Bruce Koehler, Travis Miller, Jane Wittke

Welcome/Introductions/Announcements:
Bruce Whitteberry called the meeting to order at 10:08 a.m. Bruce stated that today’s meeting was the result of rescheduling the March 6th meeting due to weather conditions, the first time a meeting had to be postponed for that reason in the history of the Groundwater Committee. The next meeting is scheduled for June 5, 2013 and will mark the 25th anniversary of the Groundwater Committee.
Local Groundwater Management Updates

Dave Combs from the City of Trenton stated that Trenton is a city of over 11,000 people located southwest of Middletown. Trenton’s ionic exchange plant is supplied by four wells with a capacity of three million gallons per day (MGD). The average daily flow is 1.1 MGD. A storage tank that was scheduled for painting did not pass the adhesion test and also tested positive for lead, so a sandblasting technique was used to remove and vacuum all old flaking paint chips containing lead. The tank was then successfully painted with full compliance. A salt storage tank was also repaired and repainted after a leak was detected, and the northeast well was cleaned.

Mike Lippert from the City of Wyoming reported that Wyoming’s lime-softening water plant came on-line in 2000, has a capacity of 3MGD and serves 3,300 taps per day with an average flow of 1 MGD. Wyoming operates six constant speed wells. Recently, new filter media has been installed at their plant and a new air stripper is online as well. The air stripper was put in place because of low levels of VOC’s found in the City’s groundwater. At current VOC levels, the City is not required to operate it, but exercises it regularly. Wyoming has also just completed maintenance on well #6 which included replacing a pitless adapter. These adapters are quite expensive and can run as high as $25,000. Because Wyoming has high iron content in their groundwater, their well lines must be monitored for iron deposits and periodically cleaned. Wyoming is currently completing an engineering study with ARCADIS to increase the efficiency of their water tower pumps, which serve a one million gallon reservoir tank and a 200,000 gallon elevated tank – approximately half of their system. In addition, all Wyoming’s facilities are now equipped with emergency generator backup systems.

Richard Stuck from the Greater Cincinnati Water Works gave an update on behalf of the Hamilton to New Baltimore Groundwater Consortium. The updated source water protection ordinance was adopted by Ross Township. It addresses road salt storage, well abandonment and a prohibition on gas stations within the one year time-of-travel zone. The Consortium is working with the City of Fairfield and Kroger’s on monitoring wells that are within the construction zone for the new store, as the wells will have to be sealed. Consortium Manager Tim McLelland is also supporting MillerCoors in its inquiries about the Enterprise Pipeline, a jet-fueled pipeline that will run through the MillerCoors well fields. MillerCoors and the Consortium want to find out what type of integrity tests will be performed on the pipeline. The Consortium continues to give educational presentations and to schedule Earth Day activities.

Donna Runkle from the U.S. Geological Survey (USGS) shared handouts on new USGS materials, including a press release on tools that are available on flooding and the 1913 flood. Donna also provided materials on the USGS streamgages, water-quality stream network, groundwater-level networks, National Atlas, U.S. Topo, and Ohio Nowcast (bacteria levels at beaches).
**OKI Staff Updates**

**Bruce Koehler** reported that the OKI Regional Conservation Council will have their annual meeting on April 25, 2013. The meeting agenda will include water issues such as storm water management and water quality credit trading.

**Jane Wittke** summarized the results of the survey on potential Groundwater Committee meeting topics, to which 26 members responded. Copies of a one-page summary of survey results were available on the sign-in table, and indicated, among other responses, widespread interest in regulatory requirements/proposed regulations; potential pollution threats; source water protection; water quality information and trends; research into our aquifers and recharge areas; legislative requirements/proposed legislation; and ground water/surface water interaction. Feedback and interests expressed will help to determine topic areas and speakers for the future. June 5th meeting will mark the 25th anniversary meeting of the Committee.

**Travis Miller** gave a brief description of the update process for OKI’s Strategic Regional Policy Plan (SRPP). He reminded the group that the purpose of the SRPP is to bring about more consistency between local land use planning and regional transportation planning. The original plan addressed 28 strategic regional issues and was adopted in 2005. Much has changed since the plan was adopted, including the effects of the economic recession, increasingly constrained local government budgets, and demands for new types of housing and employment as demographics change. The OKI Land Use Commission Steering Committee and OKI Regional Planning staff have worked to update the data for the plan and identify new trends and conditions affecting it, in the process identifying several issues that had changed and some that had not previously been considered. Before asking OKI’s Board, which sits as the Land Use Commission, to consider revisiting issues that have changed or to address new issues, OKI staff prepared a questionnaire to get public feedback and made it available both on-line and in hard copy.

OKI reached out to hundreds of partners in the region to get the word out about the questionnaire. Social media was used to drive people to the on-line questionnaire and an on-the-ground campaign was used to reach people who may or may not have access to the Internet. There were just under 2,500 questionnaires returned, which included over 1,100 write-in comments with concerns and ideas about issues facing the region. The next step will be to meet with the Land Use Commission and to consider the issues in light of the changing trends and public feedback.

**Allison Reed from the Ohio EPA Division of Groundwater** introduced John McGinnis, the new Groundwater Manager in the Southwest District. She announced that new state recommendations for salt storage management are now available at the ODNR website. She also announced that Ohio EPA has developed a fact sheet about
considerations for public water systems prior to providing raw or treated water to oil and natural gas companies.

**WIFIA: What It Means to You**

Dave Weihrauch, City of Oxford & Member, AWWA Nat’l Water Utility Council described efforts by the American Water Works Association (AWWA) to obtain legislation that would fund more water infrastructure projects at lower cost. WIFIA, the Water Infrastructure Financing and Innovation Act, would address the growing need to provide funding mechanisms to update aging water systems. Dave referred to several studies and reports that show the widening gap between water infrastructure needs and funding available, most recently the 2012 AWWA report *Buried No Longer*....

Dave pointed out that more than 95% of water infrastructure is financed with local and state sources, and that an essential federal role is to lower the cost of capital. The WIFIA would provide financing with low interest loans and is patterned after the successful Transportation Infrastructure Financing and Innovation Act.

Dave explained that he had testified before the U.S. Congress on the need not only to bring deteriorating water infrastructure up to date but also to find new technologies that will make our drinking water systems more efficient, which the WIFIA would also support. The WIFIA would provide credit support via low interest loans and guarantees to water utilities for projects too big to be funded under State Revolving Loan Funds and to State Revolving Loan Funds to help them in leveraging their programs. It would have a minimal impact on the federal budget because default rates on water bonds are very low (.04%).

Supporters of WIFIA in addition to AWWA include the Water Environment Federation and the American Beverage Association, and the bill has found some bipartisan support in Congress. Republican Representative Gibbs of Ohio (Chairman of the House Transportation and Infrastructure, Water Resources and Environment Sub-Committee) has drafted legislation and held two congressional hearings on WIFIA, and Democratic Senator Merkley of Oregon introduced WIFIA as S.B. 335 earlier this year. Dave invited anyone with questions to contact him via email at dweihrauch@cityofoxford.org

**Coal Ash Handling & Protecting Water Supplies in the Tri-State**

Tammy Jett, Duke Energy & Chair, Solid Waste Task Force, Ohio Utility Group

Tammy Jett of Duke Energy began her presentation with an overview of Duke Energy, which is the largest electric power holding company in the U.S. and employs almost 30,000 people.

Tammy described coal ash as the byproduct of a process that turns coal into energy. Coal arrives at a power plant, is pulverized and fed into giant boilers where steam is generated. The steam powers the generator which produces electricity. Tammy explained that coal ash actually refers to several different things and is often called
"coal combustion residuals" in the industry because not all byproducts produced from burning coal are really "ash". She passed around examples for the group to look at: bottom ash is very coarse; fly ash is collected as it goes up the stack and is a finer ash; and scrubber gypsum looks like sand and comes from the air pollution control process.

Coal ash can be stored in permanent landfills. Some coal combustion residuals, such as gypsum, can be recycled for uses such as drywall. (The demand for gypsum from wallboard manufacturers in some states has been so great that Duke has actually been excavating it from its landfill in the Carolinas.) Coal ash is also wet sluiced to ash ponds or impoundments where it is collected and recycled for some beneficial use or sent to a landfill. The stability of ash ponds and their potential effects on surface water and ground water is continually monitored. The question of how to make ash ponds safer for groundwater is driving new practices nationally, particularly after a catastrophic pond failure in 2008 from a Tennessee Valley Authority ash impoundment near Kingston, Tennessee.

Before the Kingston ash pond failed, over time, TVA had increased the capacity of the Kingston ash pond by increasing the height of the dike using ash to construct the dike walls. This practice could have contributed to the instability of the pond causing a worse failure than may have occurred if the ash pond was constructed differently. The main cause of the Kingston spill is believed to be liquefaction of slime layers. When the ash pond dikes failed, the ash spilled into the river and covered over 300 areas of land to a depth of four to six feet. Duke Energy does not construct ash ponds in the manner in which the TVA Kingston ash pond was constructed. Duke periodically excavates ash from ponds, monitors the stability of these ponds through inspections and test instruments, and has constructed dikes using good engineering practices.

In addition to being proactive about monitoring its coal ash ponds, Duke Energy also worked closely with the Ohio EPA in the 1980's when some elevated levels of sulfate were detected in Clermont County's well fields near Duke's Beckjord plant area. Duke employed a groundwater remediation program by installing an interceptor well system between the ash pond and the public well fields. The interceptor well system was installed in the early 1990's so there has been a significant decrease in both sulfate concentrations and in the size of the sulfate plume itself. Beckjord is scheduled to close in 2015 because of the impracticality of installing additional air pollution control devices on the aging plant.

Tammy also spoke briefly about USEPA's considering new rules on coal ash storage and debate over federal versus state oversight, as well as new federal effluent guidelines expected this spring.

**Meeting Adjourned**

Bruce Whitteberry adjourned the meeting at 12:14 p.m. and reminded the Committee that the next meeting is scheduled for June 5.