

**Getting Water:
The New Berlin Story**

Presented by:
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Discovery Conference




**Brief History of New
Berlin's Water System**

- **1960's**
 - Local Subdivision Systems Created
 - Municipal System Proposed
 - Milwaukee Water Investigated
 - Groundwater System Installed
- **1970's**
 - Additional Wells Drilled
 - Private Systems Connected
 - Storage Facilities Expanded
 - Distribution System Expanded




Brief History of New Berlin Water System (cont.)

- **1980's**
 - Additional Well Added
 - Additional Storage Added
 - Distribution System Expanded
 - Water Study Began
- **1990's**
 - Water Study Completed 1990
 - New Shallow Wells Investigated
 - New Wells Drilled
 - New Tower
 - Water Study Update in 1999 – Recommends looking at Lake Water



2001-2003 Water Supply Planning Efforts

- Lake Michigan Water Supply Study
- Phase One Paper Geophysical Study for interim well
- Phase Two Field Geophysical Study
- Radionuclide Study





Options Identified for Future Supply



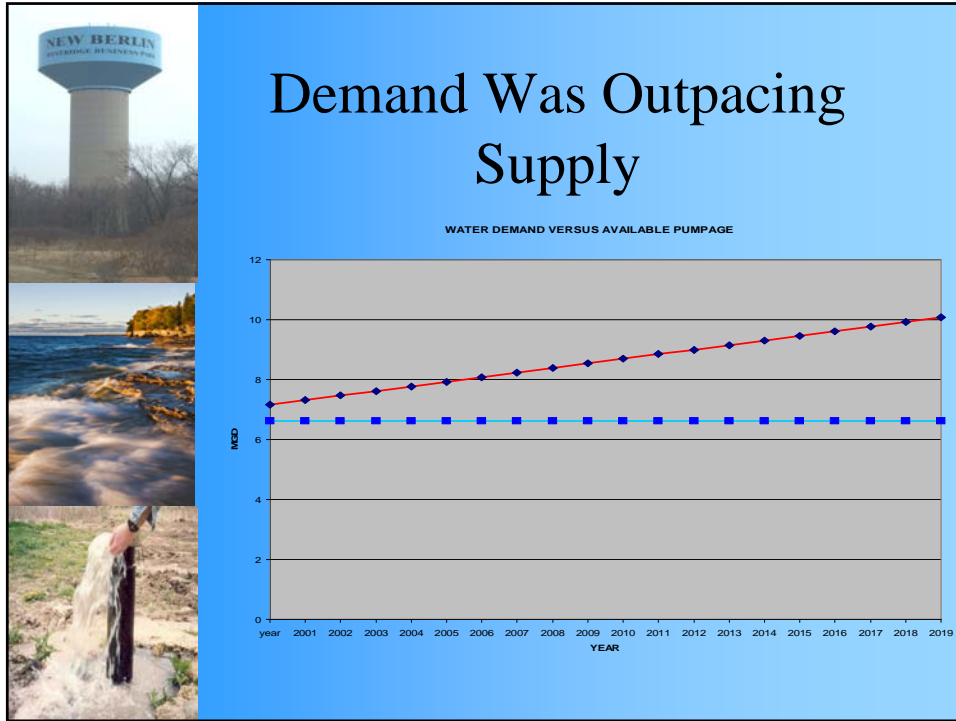
- Lake Michigan Water Supply Source
- Groundwater Supply Sources
- Combined Lake Michigan/Groundwater Supply Source



2001 System Inventory

- 9 wells and Pumping Stations
- Total Capacity of 9.61 MGD with all Wells in Full Service
- 2.75 MG Ground Storage
- 1.75 MG Elevated Storage
- 148 Miles Water Main
- 4 Pressure Zones
- SCADA Control System





Radionuclide Rule Affects Six largest City Wells

- All Six Exceed Limits for Both Radium and Gross Alpha
- Gross Alpha Levels are Increasing
- Radium Levels Steady
- Compliance Required Starting in Dec. 2006



Meant More Supply Required in the Future From Somewhere

- Shallow Wells
- Sand and Gravel
- Dolomite
- Deep Sandstone
- Lake Michigan Water Source



Future Supply From Sandstone and Other Aquifers Questionable

- Water Levels Regionally Declining
- Radium Compliance Required
- Salinity in Some Wells a Problem
- Shallow Well Sites are Virtually Unavailable or not Feasible to Develop



Potential Sources of Lake Michigan Water

- City Of Milwaukee connections in Hales Corners and Greenfield
- City of Milwaukee Through West Allis
- City of Oak Creek
- City of Oak Creek Through Franklin




Milwaukee Option the Most Cost Effective

- Mains in Place
- Sufficient Capacity
- Willing to negotiate
- Excellent Quality
- Surplus Quantity
- Long Term Source
- Political Obstacles
- Diversion Issues



Two Service Area Options

- **Serve Entire MMSD Area**
- Need CGLG approvals
- Lengthy Process
- Does Not Address Immediate Needs
- Negotiations with Milwaukee Re: Future Development
- **Serve only up to Subcontinental Divide**
- Only DNR Approval
- Less time
- Does Address Immediate Needs
- Future Development Issues Less Concern



Estimated 50 Year Present Worth Costs in Millions of Dollars

	<u>All Ground Water</u>	<u>All Lake Water</u>	<u>Combined System</u>
Capital Costs	\$14.53	\$11.54	\$14.25
O & M Costs	\$28.12	\$40.73	\$33.57
Total Present Worth	\$42.65	\$52.27	\$47.82



The left side of the slide features three vertically stacked images. The top image shows a water tower with 'NEW BERLIN' and 'CENTRIDGE RESERVOIR' on its tank. The middle image shows a rocky shoreline with waves crashing against the rocks. The bottom image shows a close-up of water gushing out of a pipe into a pool.

Recommendations from Study Reports

- Proceed immediately with New Shallow Well
- Complete Radium study and submit to DNR
- Negotiate with Milwaukee
- Design/construct Milwaukee facilities
- Pursue approval for Lake Michigan water to entire MMSD area



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Beginning in 2001

- Construct a new “Short-Term” Shallow Well to get through a few summers
- Begin Negotiations With Milwaukee for Water Service
- Explore Diversion With DNR / CGLG
- Evaluate Radium Solutions for Areas west of the Subcontinental Divide in case it can’t be served by Milwaukee



Milwaukee Water Negotiations

- Began in 2002
- Milwaukee limits Service to area in the Great Lakes Basin until Annex 2001 and Compact Completed
- Agreement reached in Spring 2003



Milwaukee Water Works



Milwaukee Water Agreement

- Signed in 2003
- Maximized Area East of Subcontinental divide served
- Sets average and Maximum day pumpage rates
- Evaluated future growth of service area
- No “strings” attached



Milwaukee Water Works



Milwaukee Facilities Designed 2003-2004 Constructed 2004-2005

- 2 new Pumping Stations to deliver Milwaukee Water
- New Water Transmission mains needed
- Stations and mains designed for “ultimate” situation



Radionuclide Rule Compliance Master Plan

Presented August 6, 2003

By:
Ruekert/Mielke



Purpose of Radium Study

- Meet EPA Radionuclide Rule
- Provide a Basis for a Document needed to support a consent order required by DNR
- Evaluate most Cost-Effective options
- Set a compliance Schedule
- Provide fall back to Milwaukee Water



Alternatives Evaluated

- Treat Deep Sandstone
- Find compliant sources
- Pursue Regulatory Relief





Seek Regulatory Relief

- Use interim Rules to buy time to review longer term options
- Perform Long term Monitoring to determine if compliance can be achieved






Plan for Consent Negotiations

- Allow time to pursue a diversion
- Interim solution by using non-radium sources primarily
- Consent to what happens in long run
- Contingency Plan for wells

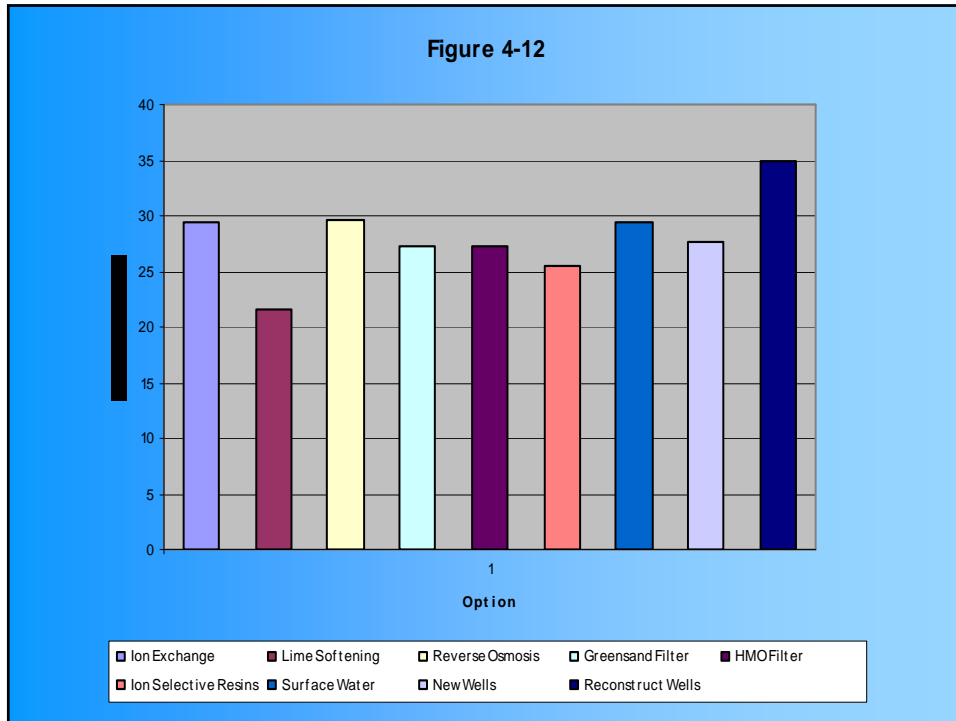


Implementation plan

- Looked at three best options based upon Benefits analysis
- Applied Construction Costs
- Used 50 year Present Worth of O & M costs
- Ranked them in order

**Table 4-2
Results of Alternate Evaluation
City of New Berlin**

Alternative Description (Weight)	Reliability (100)	Infrastructure (95)	Regulations/ Legal (80)	Political/ Public (60)	O & M (45)	Schedule (35)	Weighted Score	Rank
Ion Exchange Softening	8	5	8	7	5	8	28.40	5
Lime Softening	4	3	6	9	3	7	20.85	9
Reverse Osmosis	9	5	7	9	3	8	28.90	3
Greensand Filter	6	7	6	6	6	7	26.20	7
HMO Filter	9	7	6	6	6	7	29.20	2
Ion Selective Resins	8	7	4	5	4	6	24.75	8
Surface Water	9	8	3	6	8	7	28.65	4
New Shallow Wells/Blending	8	5	7	6	7	8	27.90	6
Reconstruct Deep Wells	8	8	10	7	9	9	35.00	1



Implementation

- Eliminated No. 1 choice –Well Rehab - due to well conditions
- Next 3 Choices were basically equal
- Went down 2 prong path
 - Design HMO Plants but don't build until absolutely necessary
 - Negotiate with Milwaukee for remainder of service area



Regulations were Changing

- States working on New Compact
- Existing Regulations in Place
- Delay after Delay pushes New Berlin back
- Milwaukee Negotiations begin in earnest in 2007 following direction from DNR

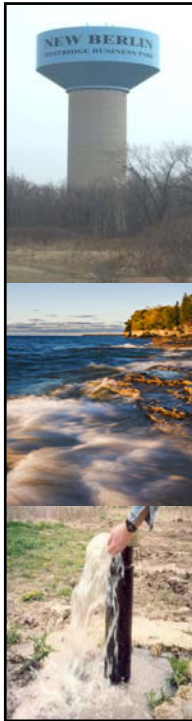


April 2006 Application

- Followed proposed New Compact rules
- Had great Scrutiny from Environmental Groups
- First Ever for Straddling Community

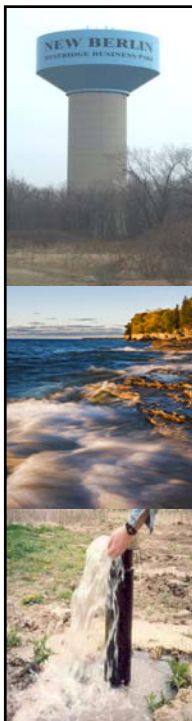
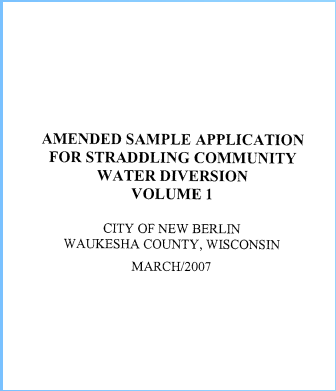
CITY OF NEW BERLIN, WISCONSIN
APPLICATION FOR WATER
DIVERSION

CITY OF NEW BERLIN
WISCONSIN
APRIL/2006



March 2007 Application

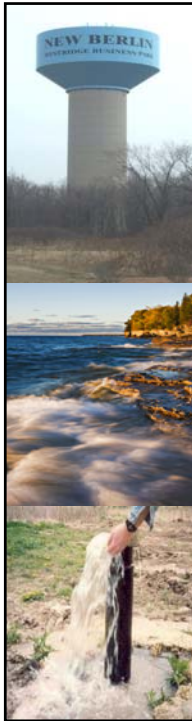
- Amended Previous Application
- Provided Greater Detail
- Scrutinized closely



July 2007

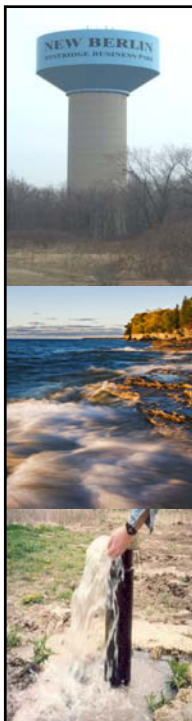
- DNR indicates no review needed under current law for a diversion
- Gives go-ahead to negotiate with Milwaukee





Negotiations Commence

- Teams set up from City of New Berlin and Milwaukee
- Issues brought to the Table
 - Urban Sprawl
 - Transportation
 - Housing
 - Revenue Sharing



Agreement Reached in July 2008

- Two agreements
 - First is for water supply from Milwaukee to New Berlin
 - Second is for one time Payment to Milwaukee of \$1.5 Million as recognition of the service provided
 - Past radium compliance time

STATE OF WISCONSIN CITY OF NEW BERLIN WAUKESHA COUNTY

RESOLUTION NO. 08-26

RESOLUTION TO APPROVE THE FIRST AMENDMENT TO AGREEMENT BETWEEN THE CITY OF MILWAUKEE AND THE CITY OF NEW BERLIN FOR THE PURCHASE OF WATER AT WHOLESALE AS WELL AS AN INTERGOVERNMENTAL AGREEMENT BETWEEN THE CITY OF MILWAUKEE AND THE CITY OF NEW BERLIN



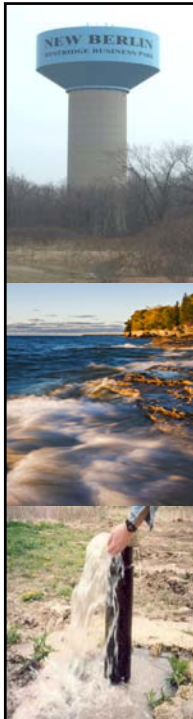
Compact Signed-State Prepares Enabling Legislation

- All happening while New Berlin is in the middle of trying to get Approval
- What is Required ?
- Moving Target
- Ultimately needed to Prepare a number of new documents



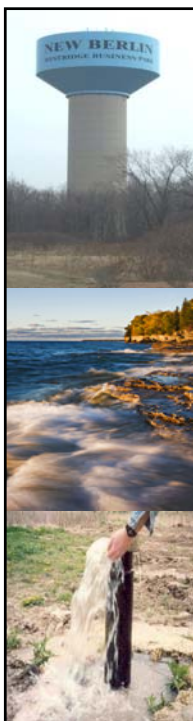
DIVERSION APPROVED

- May 21, 2009
- First ever under the new Compact
- Straddling Community
- Return Flow Requirements easily met
- Annual reporting required – no method established



Lessons Learned

- Wheels of Government move Slowly
- Not Always good to be First
- Perseverance has it's rewards
- Long term health and safety of the citizens best protected by the path chosen – even with the obstacles



Changes made to New Berlin to Accommodate the Entire Service Area

- New and Larger pumps
- Reuse of existing Facilities to Store Water
- Metering and SCADA control Changes
- Public Notices



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Waukesha County




Milwaukee reminds new Waukesha mayor of water deal's terms

Aldermen say industry non-compete clause, compensation are vital

By [Don Behm](#) of the Journal Sentinel

Posted: April 21, 2010 [\(26\) Comments](#)

Any deal to sell Lake Michigan water to Waukesha must include an industry non-compete clause and an economic compensation payment, Milwaukee Common Council President Willie Hines and seven other aldermen say in a letter to newly elected Waukesha Mayor Jeff Scrima.



Thank –You !

Questions

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