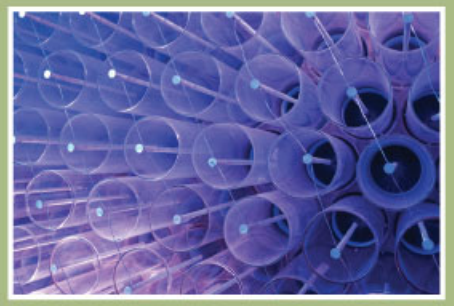
INDIANA
AMERICAN WATER



Sustainability Projects in Indiana

Dan Haddock, P.E., Manager Engineering

Indiana Finance Authority Sustainability Workshop
State Revolving Fund Track
June 5, 2008

INDIANA AMERICAN WATER

Enhancing Sustainability of Water Utility Operations

U.S. GREEN BUILDING COUNCIL
LEED CERTIFIED
2001

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Recognizing Existing Sustainable Practices

Broad participation → better understanding of sustainability → stronger commitment → foundation for future improvements

- Maintenance programs
- Control non-revenue water
- Obsolete main replacement
- Purchase efficient pumps, motors & vehicles
- Minimize environmental impacts
- Life-Cycle cost analysis
- Full cost pricing of water service
- Comprehensive planning
- Employee development & succession planning

Improving Sustainability

Identify and implement best operating practices, get the most out of existing infrastructure, long-term focus

- Energy audits - optimize pumping systems
- Comprehensive planning & asset management
- Water efficiency
- Energy efficient building materials, lighting & climate controls
- Native landscaping
- “Green” concrete
- Enhance coordination & cooperation – share resources

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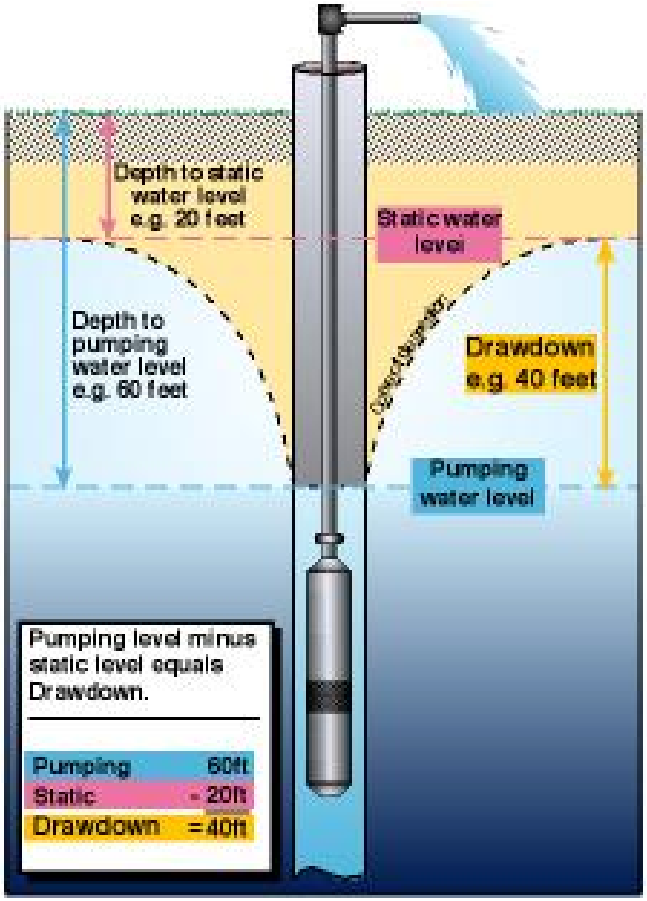
Optimize Well Pumping – Manage Drawdown



- **The harder a single well is pumped, the more drawdown**
- **More Drawdown = More Energy**
- **Full well pump capacities needed only a few days in a year**
- **Manage Drawdowns to Save $$**
  - spread out withdrawals - multiple wells
  - reduce pump rates - variable speed drives
- **For 1 mgd, average 5 ft drawdown reduction**
  - $800/yr in electrical power savings
  - 7 tons/yr of CO_2 emissions avoided

Optimize Pumping Systems

- **Pump systems that don't match the application <u>waste</u> energy**
  - Oversized or undersized pumps
  - Throttled valves, small piping
- **50Hp motor, 2% efficiency loss costs:**
  - $800/yr in wasted electrical power
  - 7 tons/yr of CO2 emissions
- **Pump efficiency changes with operating conditions**
- **Match pumps to conditions**
  - Multiple pumps for different conditions
  - Variable Speed Drives to "move" the best efficiency point.
  - Use SCADA to select best pumps

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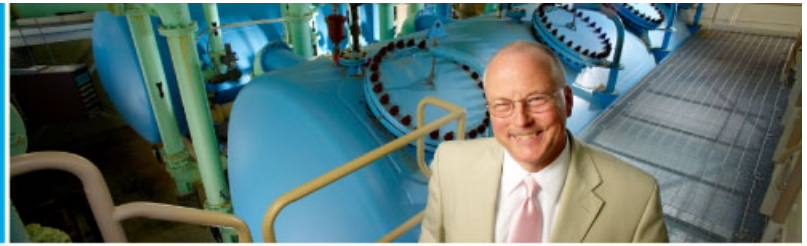

Decision Making – What Makes Sense for Your Utility?

- Use life cycle cost analysis to understand financial impact – investment, revenue, operating expenses
- Engage employees to understand all costs, savings and other benefits. Is it truly sustainable?
- Consider trends – energy costs, climate change
- Balance environmental, financial, and social benefits
- Assess regulatory commission support – prudency of investments, rate structures that encourage conservation while protecting revenue
- Opportunities to educate our customers about sustainability - they expect us to be environmental leaders

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Thanks for Attending!

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