



2014 PNWS-AWWA Conference

DISTRIBUTION

“Sustainable Asset Management Programs for Potable Water Storage Tanks”

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OVERVIEW:

- ▶ Who is Utility Service Group?
- ▶ What's the definition of *practical* tank asset management?
- ▶ Why practical tank asset management?
- ▶ What's the definition of *sustainable* tank asset management?
- ▶ What are my tank maintenance procurement options?
- ▶ How does traditional procurement compare to practical tank asset management?
- ▶ What's GASB 34?
- ▶ How is tank asset management more sustainable?





Utility Service Group

- ▶ Municipal Water Experts
Since 1963
- ▶ National Service Capability
- ▶ Comprehensive System-wide Asset Condition Assessments
- ▶ Distribution System Rehabilitation Services
- ▶ Sustainable Asset Management Smart Solutions





Innovative Solutions

- ▶ **Water Storage & Distribution System Asset Management**
- ▶ **Water Quality Management**
- ▶ **Water Well Asset Management**
- ▶ **Non Revenue Water Programs**
- ▶ **Communications Site Management**
- ▶ **Smart Water & Sewer Management**





A Different Approach & Solutions

- ▶ **Sustainable Best Practices & Technologies**
 - Deploy only the most *sustainable* practices & technologies
 - Take a *holistic approach* to the distribution system
 - Asset Management = Water Quality Management
- ▶ **Goal: Optimize CapEx & OpEx System-wide**
 - Focus on the distribution system first (often lower CapEx & OpEx)
 - Custom engineered solutions based on accurate condition assessments
 - Understand the system and the issues
- ▶ **Maintain Regulatory Compliance = Customer Satisfaction**
- ▶ **Provide Unique Funding Options**
 - Spread Rehab Costs
 - Balanced Allocation

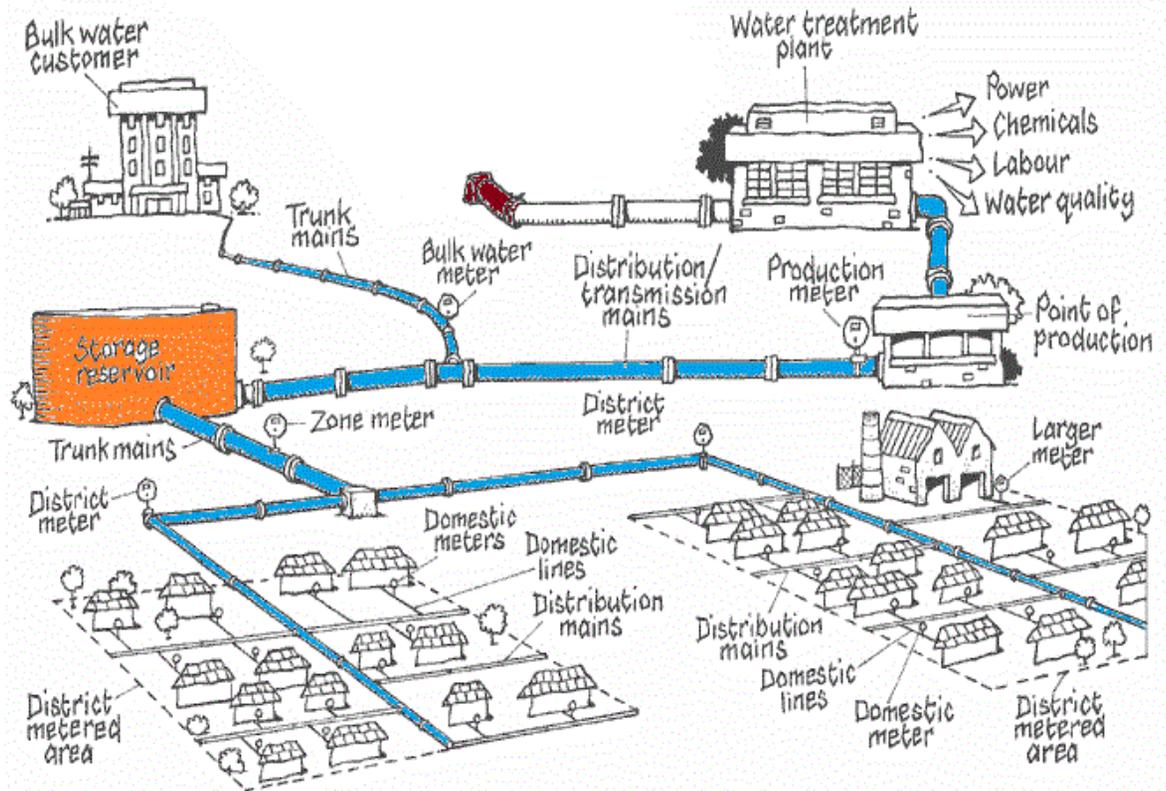




A Different Approach & Solutions

A holistic approach to the distribution system: **No Silver Bullets**

- Well asset management
- Water Tank
 - Asset Management
 - Chemical Cleaning
 - Active mixing
 - In-Tank aeration
- Water Mains
 - Asset Management
 - Helium Leak Detection
 - Pressure Management
 - DDMA





Sustainable Tank Asset Management

The Asset Management Concept:

An asset management provider will evaluate, plan and provide ALL maintenance and repair needs for the water storage facilities on an ongoing sustainable basis. (GASB34)

VS. "Run to Failure"





Components of a Comprehensive Sustainable Tank Asset Management Program

- ▶ Must include ongoing maintenance of the following conditions:
 - Safety Conditions
 - Sanitary Conditions
 - Coatings Conditions
 - Structural Conditions
 - Security Conditions





Why Asset Management?

- AWWA M42: Steel Water Storage Tanks (1998):
 - “ A good, comprehensive preventative maintenance program can extend the life of an existing tank (as well as that of a new tank) INDEFINITELY”
 - “ Many thousands of dollars can be saved and complaints from citizens can be eliminated if a planned approach to tank maintenance is adopted.”
 - “ Small outlays for maintenance can substantially delay or eliminate the need to replace a utilities large capital investment in tanks



Why Asset Management?

- ▶ AWWA "Steel Water Storage Tanks" (2010) Chapter 10, Page 381:

"Why have a maintenance program? The answer is simple: Preventive maintenance has been, and always will be, less expensive than crisis maintenance."



Infrastructure Sustainability

- ▶ What sustainability means, a practical definition:

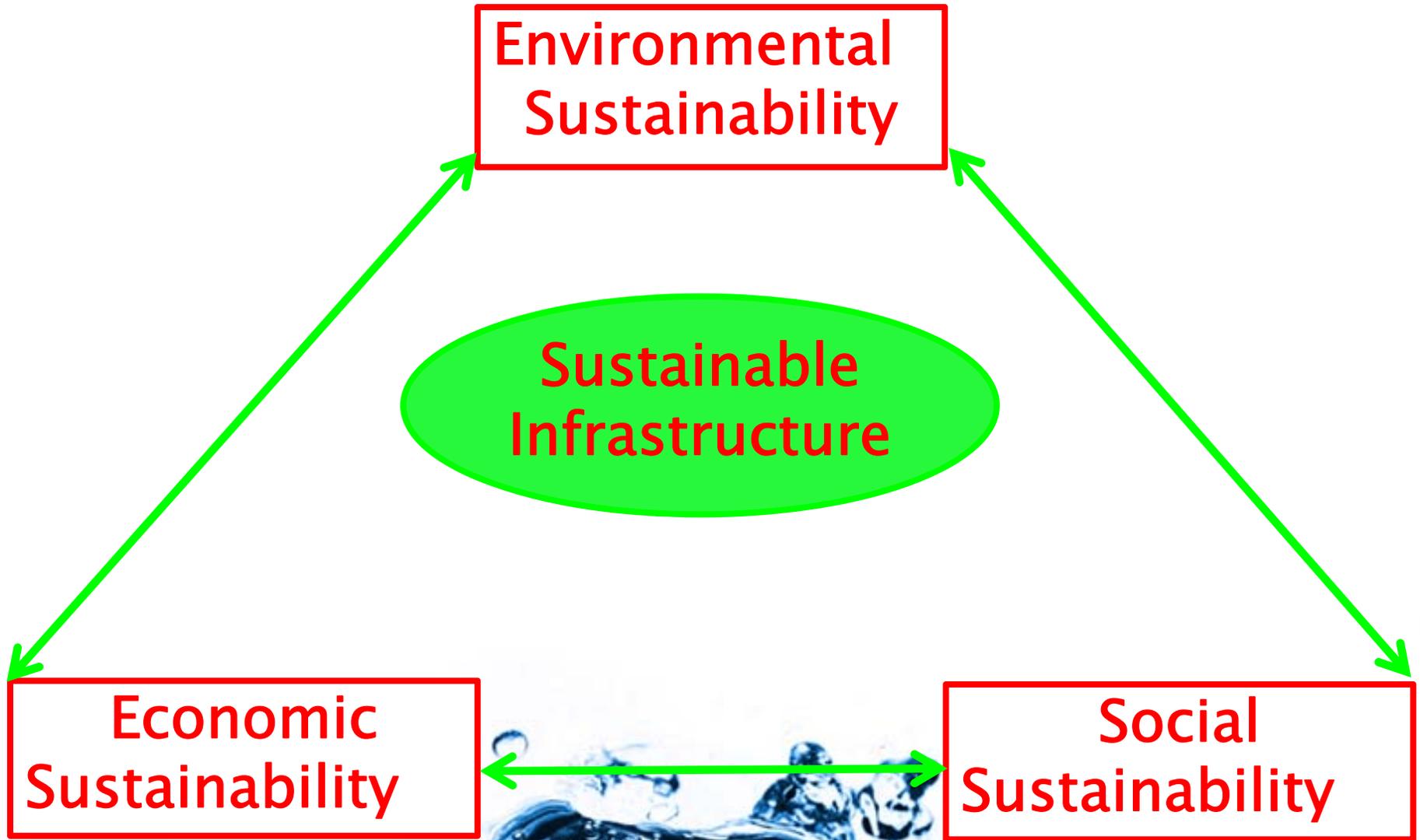
“Ensures that it meets the needs of the present without compromising the ability of future generations to meet their own needs”

Bruntland Commission, 1987





Infrastructure Sustainability



**Economic
Sustainability**

**Environmental
Sustainability**

**Sustainable
Infrastructure**

**Social
Sustainability**



Sustainability: New Approach for Assessment of Asset Management

OLD APPROACH:

Evaluate Alternatives
Based on:

- Economic factors
- Technical factors

NEW APPROACH:

Evaluate Alternatives Based on
“Triple Bottom Line”:

- Social
 - Environmental
 - Economic
- } **Non-
Economic
Factors**

(Still must be technically viable!)





Review of Tank Maintenance Procurement Options:

- ▶ Traditional Approach

- ▶ Tank Asset Management:
 - Limited Service Maintenance Contracts
 - Full Service Asset Management Programs





Traditional Method of Tank Maintenance Procurement

- ▶ Owner or third party firm conducts condition assessment & develops scope of work and specifications
- ▶ Specifications are advertised
- ▶ Contract awarded to lowest bidder
- ▶ Owner hires an inspection firm for enforcement of specification
- ▶ Typically one warranty period
- ▶ Limited sustainability





Traditional Method of Tank Maintenance Procurement

Benefits:

- ▶ Total Control of Scope of Work

Drawbacks:

- ▶ Potential adversarial relationship
- ▶ Responsibility “passing” among contractors
- ▶ Potential for additional work (Change Orders!)
- ▶ Limited warranty period (1-5 years)
- ▶ Limited sustainability





Tank Asset Management Programs

- ▶ Limited Service Programs
 - Provides for specific limited aspects of tank maintenance (Service Contracts)

- ▶ Full Service Programs
 - Provides for ALL aspects of tank maintenance: safety, sanitary, structural, coatings and security conditions in a sustainable manner.





Limited Maintenance Programs

Benefits:

- ▶ Owner defines the scope of services
- ▶ Provides for limited service within scope

Drawbacks:

- ▶ Does not provide for all aspects of maintenance (not GASB 34 compliant)
- ▶ Potential conflicts among contractors
- ▶ Potential responsibility "passing" among contractors
- ▶ Owner needs to address items outside scope
- ▶ Limited sustainability





Asset Management Programs

Benefits:

- ▶ Single source responsibility
- ▶ Balanced funding & spreading of costs
- ▶ Evaluation and planning
- ▶ Regulatory compliance
- ▶ Annual inspection and maintenance
- ▶ Emergency repair service
- ▶ GASB 34 compliance possible
- ▶ Sustainable method of maintenance

Drawbacks:

- ▶ Long-term status of the maintenance provider





Single Source Responsibility

- ▶ Maintenance provider is responsible for ALL aspects of tank maintenance
- ▶ Reduces time and training requirements of elected officials and system employees
- ▶ Eliminates passing of responsibility





Balanced Funding/Spreading Costs

- ▶ Eliminates large lump sum expenditures
- ▶ Provides easy budgeting and controlled allocations of maintenance funds
- ▶ Allows for initial repair costs to be spread out over a number of years and covers cost of future repaints
- ▶ Eliminates need for emergency repair funds
- ▶ Assures dedicated funding for maintenance of the systems most valuable assets





Evaluation and Planning

- ▶ Provides detailed evaluation of all maintenance needs by qualified engineers and N.A.C.E. certified coatings inspectors
- ▶ Provides detailed *short-term* and *long-term* plans for maintenance
- ▶ Maintenance provider assumes responsibility for implementation of plan





Regulatory Compliance

- ▶ Maintenance provider assures compliance with all Federal, State and local regulatory issues: AWWA, OSHA, NSF, FAA & MO DNR
- ▶ FCC regulations regarding antenna installations
- ▶ Annual inspections to verify continued compliance with current regulations/GASB34





Annual Inspections and Maintenance

- ▶ Annual visual inspection
- ▶ Biennial washout inspection to remove sediment with chemical cleaning for biofilm removal
- ▶ Annual inspections to verify GASB 34 compliance
- ▶ Sanitary Inspections





Emergency Repair Service

- ▶ Maintenance provider provides emergency repair service
- ▶ Sanitary conditions verification annually
- ▶ Leak repair
- ▶ Damage from vandalism





GASB 34 Compliance

- ▶ GASB: Governmental Accounting Standards Board
- ▶ Formed in 1984 as private sector organization
- ▶ Setup to establish financial accounting and reporting standards for state and local governments
- ▶ Statement No. 34





GASB 34 Capital Asset Accounting Requirements

- ▶ Report ALL Capital Assets
- ▶ Report ALL Infrastructure Assets
- ▶ Infrastructure Assets may be depreciated or a "modified approach" may be used which employs an "Asset Management System"
- ▶ "Asset Management System" for tanks is a full service preventive maintenance program that will maintain the asset at the declared condition level





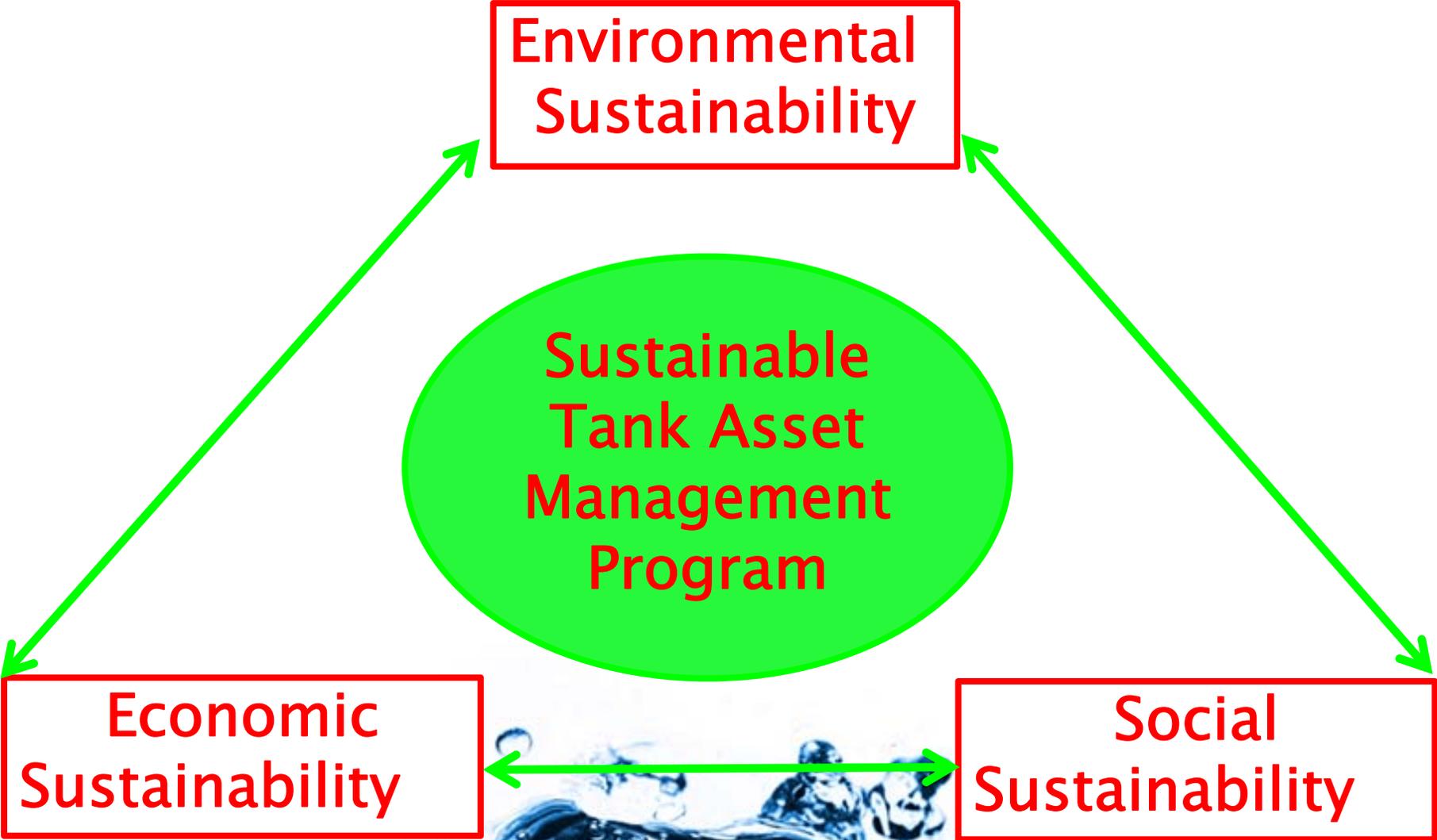
American Public Works Association Guidance Position Statement on GASB 34

“Because accounting based on historical costs and depreciation is not a useful management tool, and because effective tools are available to develop asset management systems, **APWA** recommends that agencies local and state government use the “*modified approach*” allowed under GASB 34.....”





Sustainable Approach to Tank Maintenance



Economic Sustainability

Environmental Sustainability

Sustainable Tank Asset Management Program

Social Sustainability



Sustainability of Asset Management Programs for Water Tanks:

▶ ECONOMIC BENEFITS:

- 1) Spreading of initial renovation costs
- 2) Balanced allocation of funds into annual fee
- 3) Assures all ongoing maintenance needs are funded
- 4) Assures all FUTURE renovations are funded
- 5) Regular chemical cleaning & active mixing minimizes disinfectant demand
- 6) Assures all risks associated with maintaining safety, sanitary, structural and coatings conditions are covered by provider
- 7) Assures GASB 34 Compliance





Sustainability of Asset Management Programs for Water Tanks:

- ▶ ENVIRONMENTAL BENEFITS:
 - 1) Maintaining exterior coating system maximizes time between sandblastings minimizing environmental impact to air, water and ground
 - 2) Use of low VOC coatings technology
 - 3) Use of recyclable blast media minimizes volume of material to landfill
 - 4) Use of highly energy efficient mixing systems





Sustainability of Asset Management Programs for Water Tanks:

▶ SOCIAL BENEFITS:

- 1) Management of water quality/public health by maintaining:
 - sanitary conditions
 - safety conditions
 - structural conditions
 - security conditions
 - coatings conditions
 - chemical cleanings
 - active mixing system
- 2) Minimizing costs of tank maintenance lowers water rates for public.
- 3) Proactive maintenance lowers risk of disruption of service





Practical Sustainable Tank Asset Management Program Summary

A comprehensive practical tank asset management program is a viable option to the traditional tank maintenance procurement methods and offers a simplified, economical, SUSTAINABLE approach to tank maintenance

VS. "Run to Failure"





**For more information on
tank asset management:

July 2012 Opflow**





Burning Questions?

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