

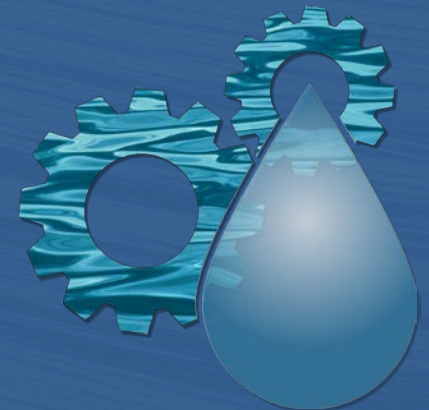


Effective Utility Management and Lean at Water-Sector Utilities



Improving Performance and
Addressing Key Management
Priorities

November 8, 2012



Webcast Agenda



- *Overview of EUM and Lean for Water-Sector Utilities*
Jim Horne, EPA Office of Water



- *Utility Case Study*
Diane Taniguchi-Dennis, Deputy General Manager, Clean Water Services, OR



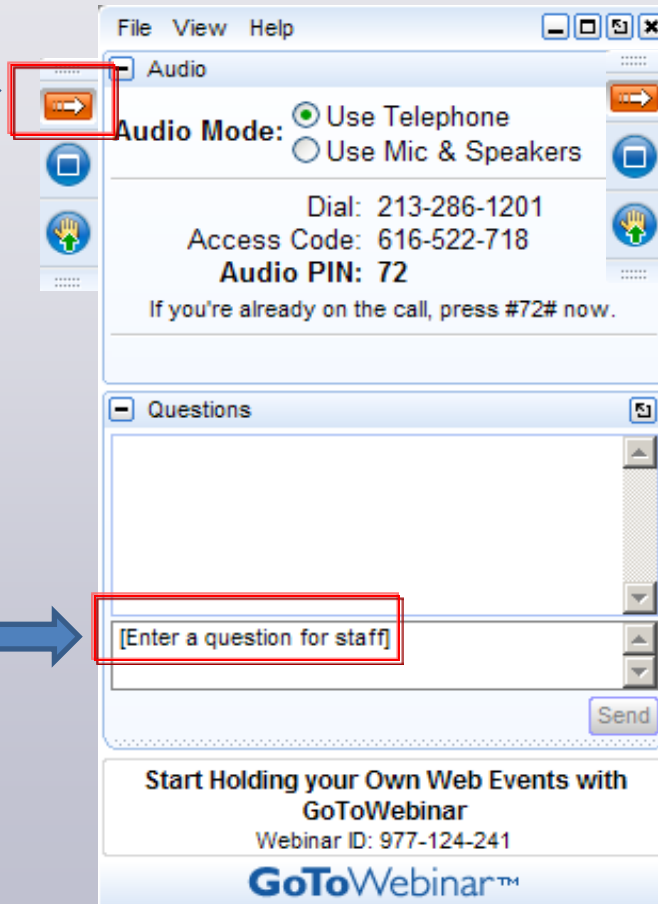
- *Utility Case Study*
Randy Brown, Utilities Director,
and



- **Maria Loucraft**, Utilities Compliance and Efficiency Manager,
City of Pompano Beach Utilities Department, FL
- Questions and Answers

How to Participate Today

Open and close your control panel



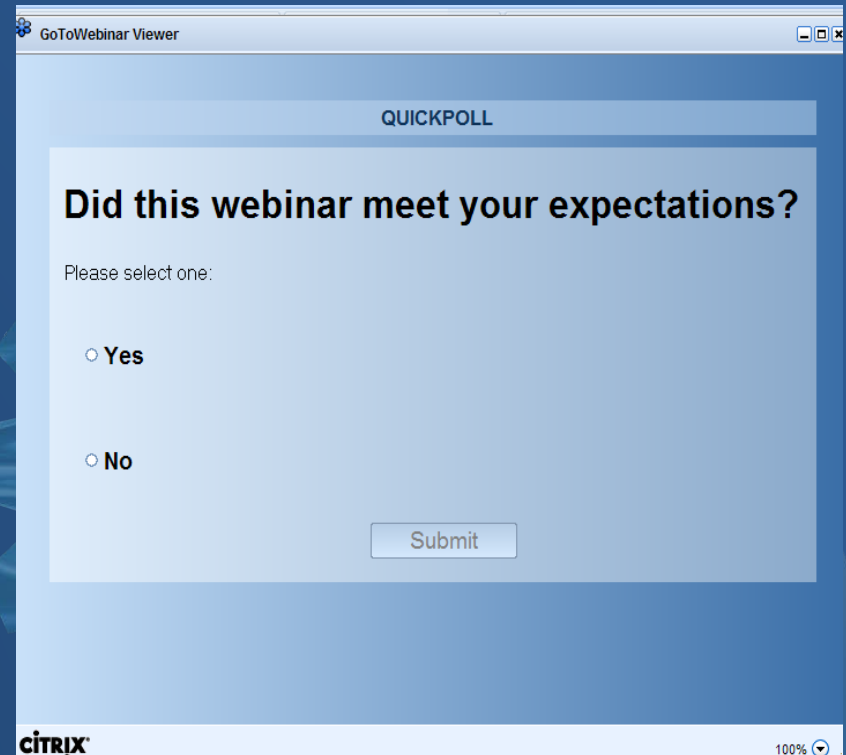
Please submit questions using the questions box



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Polls

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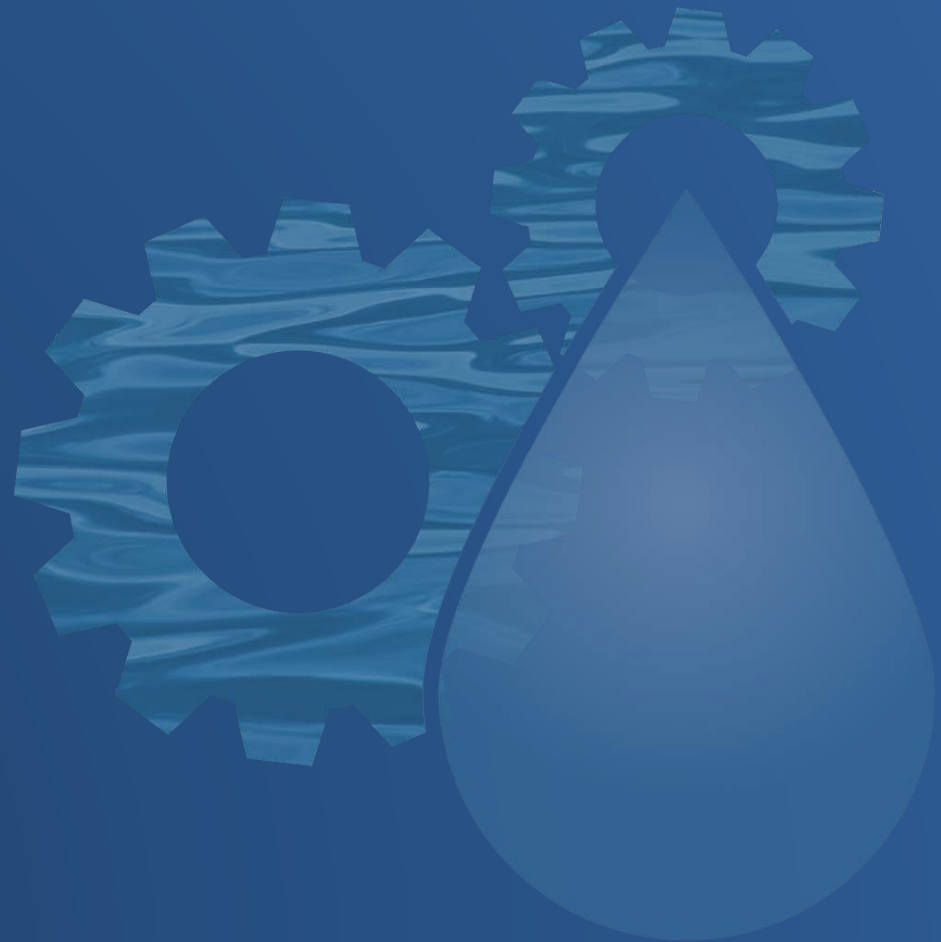
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No

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Quick Poll

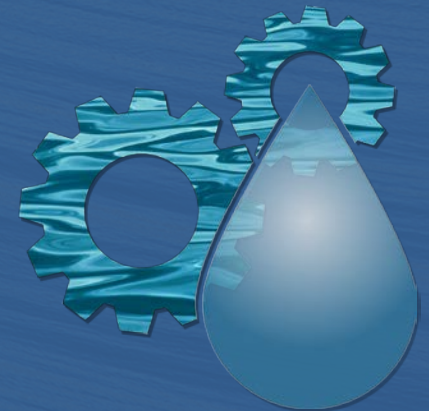




Overview of EUM and Lean for Water-Sector Utilities



Jim Horne, EPA Office of Water



Background—Why EUM and Lean

- Utilities face many challenges: aging infrastructure, increasing regulatory requirements, aging workforce, funding constraints, competing local priorities, etc.
- Effective Utility Management (EUM) sets strategic direction for utilities—endorsed by EPA and major water sector associations
- Lean provides powerful tools that support EUM
 - EUM Attributes identify what outcomes to achieve
 - Lean methods describe how to achieve the outcomes

Effective Utility Management

- EUM is a framework that helps water-sector utilities:
 - Assess strengths and weaknesses
 - Set priorities
 - Identify outcomes to achieve
- Three key components:
 - 10 Attributes of Effectively Managed Utilities
 - Five Keys to Management Success
 - EUM Self-Assessment Tool (Primer)

10 Attributes of Effective Utilities

Product Quality

Employee and Leadership
Development

Financial Viability

Community Sustainability

Stakeholder Understanding and
Support

Customer Satisfaction

Operational Optimization

Operational Resiliency

Infrastructure Stability

Water Resource Adequacy

Example EUM Assessment Through the Primer

| | | | | | | | | | | | |
|---------------|--------------------|----------------|---|----|----|----|----------------|----|---|---|---|
| Rating | Lower Achievement | 5 | | | | | | | | | |
| | | 4 | | OO | | | | SS | | | |
| | | 3 | | | IS | | | | | | |
| | Higher Achievement | 2 | | | | OR | | | | | |
| | | 1 | | | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | More Important | | | | | Less Important | | | | |
| | | Ranking | | | | | | | | | |

OR Operational Resiliency
 SS Stakeholder Understanding & Support

OO Operational Optimization
 IS Infrastructure Stability

Lean

- Lean is a business improvement approach and set of methods that *eliminate non-value added activity or “waste”*
- It uses practical, implementation-based methods
- Often combined with Six Sigma – a set of statistical tools designed to eliminate defects and variations

“Lean forces you in a deliberate and logical way to evaluate a process. You have to walk through step-by-step and evaluate areas that are wasteful and refine them. Lean shows you how to do things better, more quickly, and more efficiently.”

– Gwendolyn Ruff, Columbus Water Works

Lean Eliminates Wastes ("DOWNTIME")

- Defects
- Overproduction
- Waiting
- Non-utilized or under-utilized talent
- Transportation
- Inventory
- Motion
- Excess Processing

Water-Sector Utilities Results from Combining EUM and Lean

- City of Palm Bay Utilities
 - Improved **financial viability** and **operational optimization**
 - **40% reduction in energy costs** at its water and wastewater treatment plants from Lean and EMS process improvements
- Charleston Water System
 - Improved **financial viability** and **operational optimization**
 - Saved **\$1.3 million/year** in O&M costs and **increased plant capacity by 2.62 MGD** through an I&I project using Lean methods

Lean Methods Used by Utilities (Examples)

5S: A 5-step process to improve organization, cleanliness, safety, and efficiency of work areas (Sort, Set in order, Shine, Standardize, Sustain, and sometimes Safety as 5S+S or 6S)



Lean Methods Used by Utilities (Examples)

Lean/Kaizen Events:

A 2-5 day period when a cross-functional team of employees analyzes and improves a process



Day 1

Training Day

Begin mapping and measuring current work process

Day 2

Discovery Day

Measure and analyze current work process

Day 3

Do Day
Create and map new process

Day 4

Do, Re-Do, Document Day
Finalize new process design, estimate benefits, develop action plan

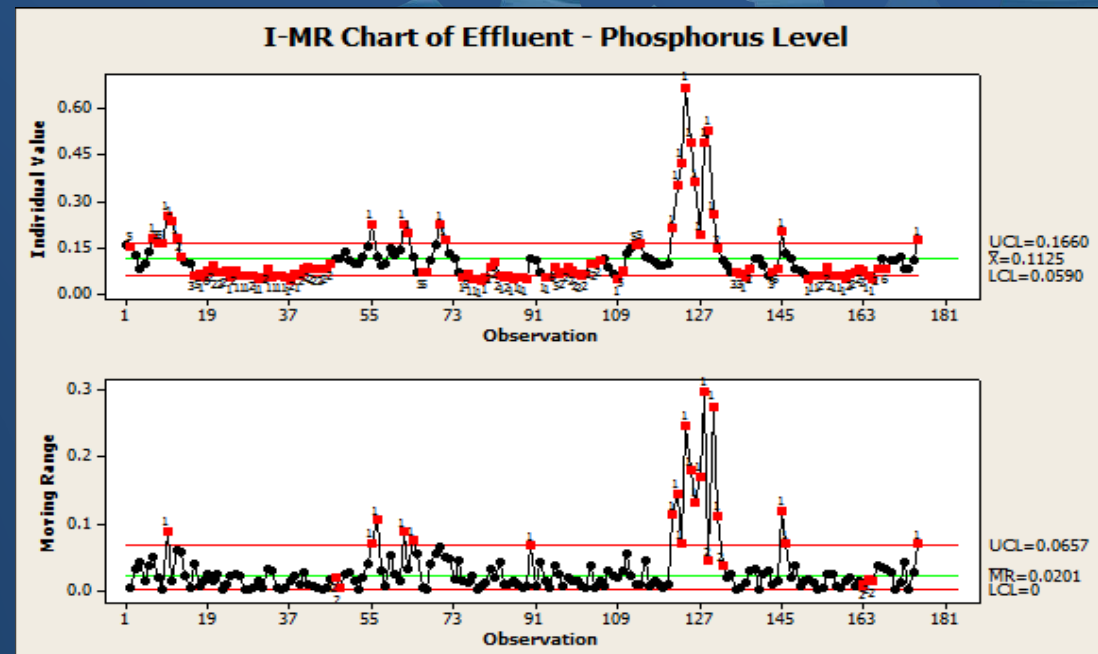
Day 5

Celebration Day
Present results and celebrate

Lean Methods Used by Utilities (Examples)

Six Sigma: An improvement approach and set of statistical tools designed to eliminate defects and variation

Define
 Measure
 Analyze
 Improve
 Control



Example EUM and Lean Connections

| Selected EUM Attributes | Lean Connections |
|---------------------------------|---|
| Operational Optimization | <ul style="list-style-type: none"> • Lean has tools for identifying sources of variation and inefficiency in the use of resources, time and can help optimize performance • Many Lean tools are simple, visual, and can be implemented in a variety of processes (e.g., administrative, maintenance, treatment processes, etc.) |
| Financial Viability | <ul style="list-style-type: none"> • Cost savings is one of the most frequently cited benefits of Lean events • Cost savings and avoidance are realized from process changes allowing utilities to increase machinery and process efficiency |

EUM & Lean

“The EUM Assessment is a good tool for prioritizing your utility’s goals and initiatives – but it only makes a difference if you then take action. That’s where Lean fits in.”

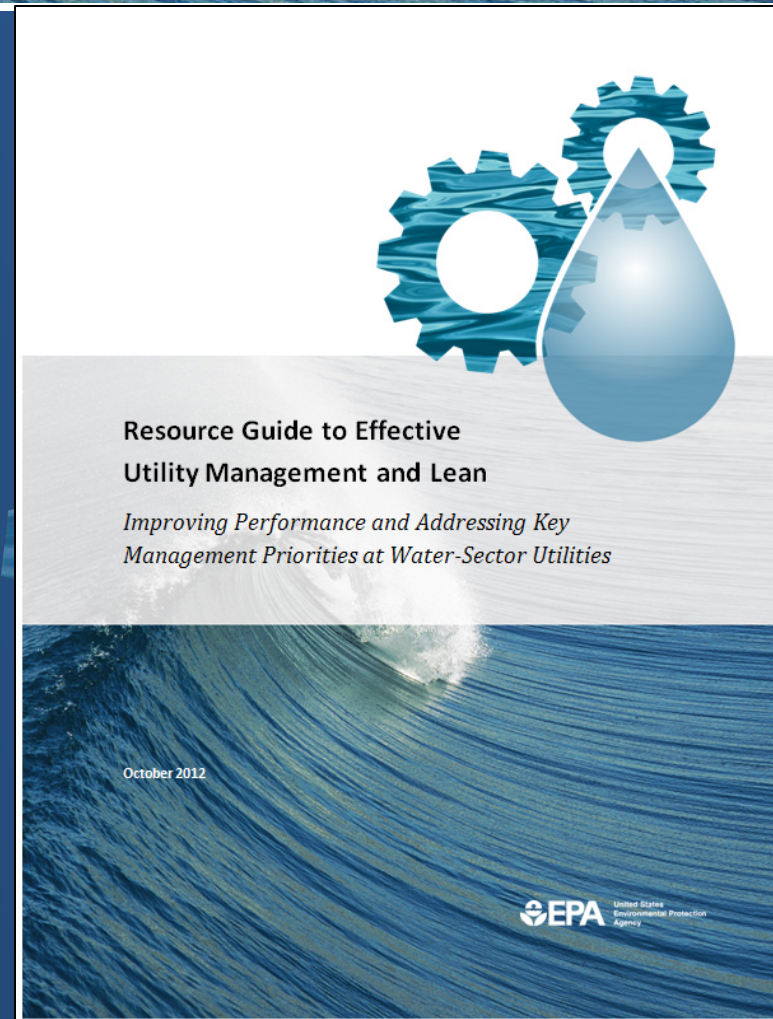
– Ed McCormick, East Bay Municipal Utility District, CA

“We used EUM to develop our strategic plan and recently used Lean techniques to optimize our backflow program. We were so impressed with the outcome as far as better use of staff time and increase in productivity that we have trained three people in our department in Lean techniques. We expect this will become part of our culture.”

– Tyler Richards, Gwinnett County Water Resources, GA

Resource Guide to EUM and Lean

- *Resource Guide* -- a “bridging document to show how utilities can use EUM and Lean together to:
 - Address key management priorities
 - Deliver financial and operational results, improve customer service, and reduce risk
 - Enhance continual improvement efforts



Steps for Getting Started with EUM and Lean

1. Conduct an EUM Self Assessment to determine improvement priorities
2. Engage leadership
3. Learn more about Lean
4. Find technical assistance
5. Conduct EUM and Lean improvement projects

REMEMBER: APPLY THE “KISS” APPROACH WHEN STARTING OFF!

Tips from Water-Sector Utilities on Getting Started with EUM and Lean

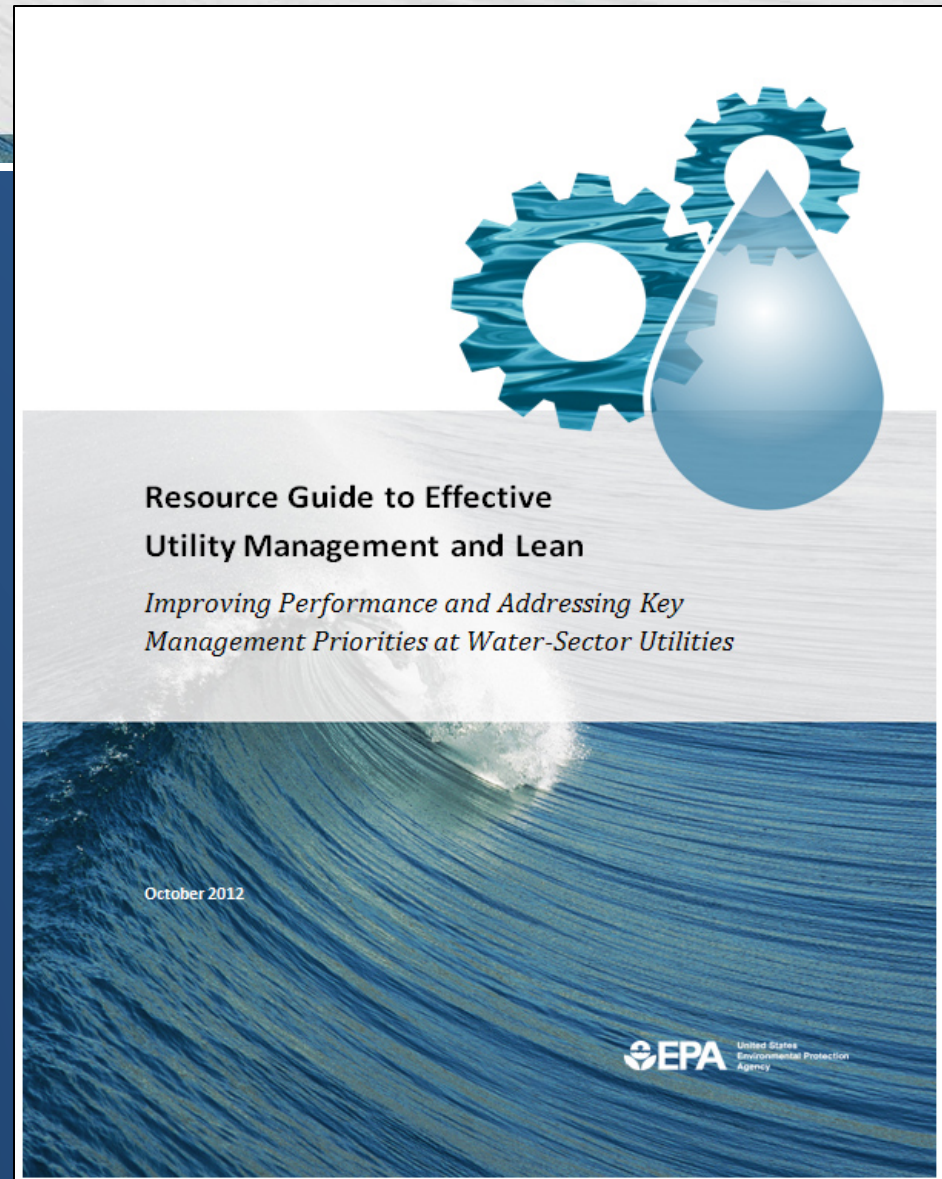
Where to Start and What Tools to Use

- Do the EUM assessment to better understand where to focus your improvement efforts
- When considering improvement efforts, be sure to address the culture of your organization, what you want to change, and how fast—set your own pace!
- Lean can be as easy as understanding waste; you can start at many places
- You can adjust Lean tools; you don't have to do everything "by the book"

EUM & Lean Steering Group: Critical to Success

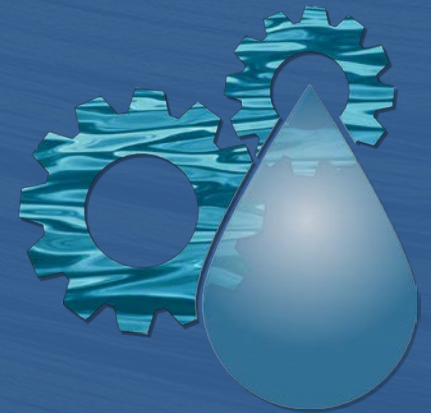
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|------------------------|---|
| Richard Bickerstaff | Charleston Water System, SC |
| Randy Brown | City of Pompano Beach Utilities Dept., FL |
| Maria Loucraft | City of Pompano Beach Utilities Dept., FL |
| Ed McCormick | East Bay Municipal District, CA |
| Tyler Richards | Gwinnett County Water Resources, GA |
| Dan Roberts | City of Palm Bay Utilities Dept., FL |
| Gwendolyn Ruff | Columbus Water Works, GA |
| Mat Stickler | Clean Water Services, OR |
| Diane Taniguchi-Dennis | Clean Water Services, OR |
| Donna Wies | Union Sanitary District, CA |

The Resource Guide
is available at:
[http://www.epa.gov/
lean/environment/pdf
/eum-lean-guide.pdf](http://www.epa.gov/lean/environment/pdf/eum-lean-guide.pdf)





Thank you!
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Questions and Answers



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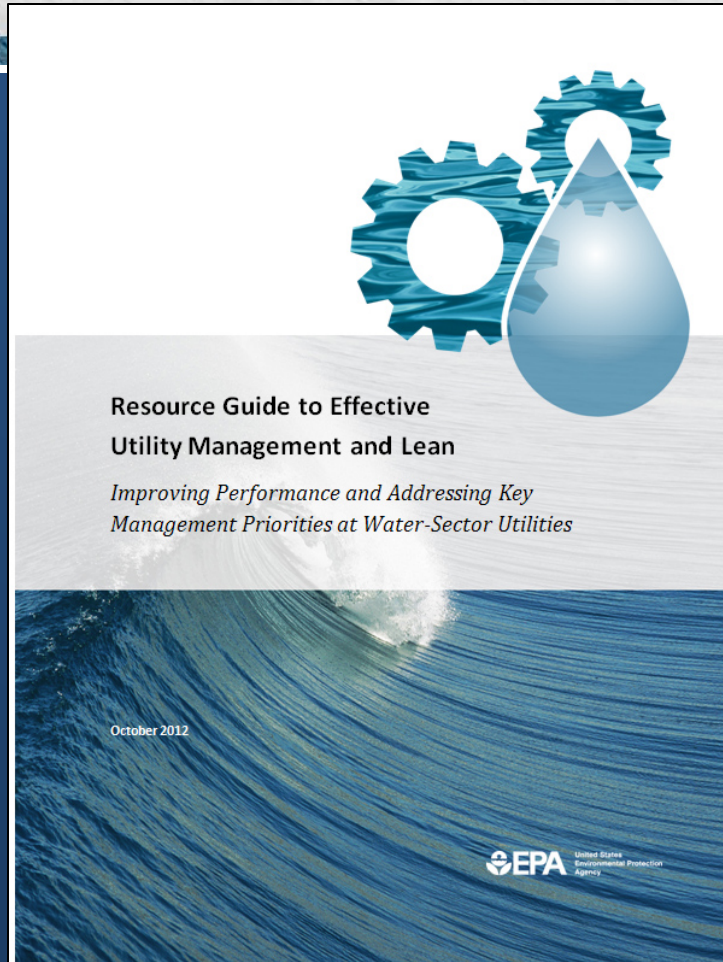


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Thank you for participating



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<http://www.epa.gov/lean/environment/pdf/eum-lean-guide.pdf>